Analysis of the Fourth of July Week Using CY2016-2020 Data

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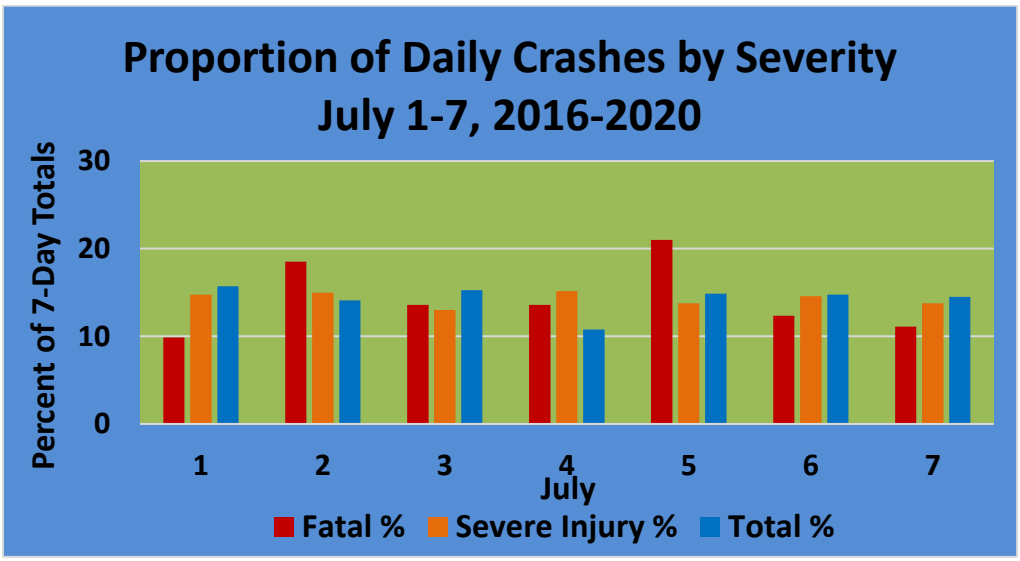
Summary of the Article for News Release

The study reported for this article was performed by a detailed analysis of crash reports that occurred on July 1-7 in the five calendar years (2016-2020) for which data were available. The numbers that are given are for all five years so to reduce them to annual numbers, just divide by 5. The study employed the IMPACT module of the CARE system, which automatically compares crash subsets to mine the data for *over-representations* (items that are significantly higher than what would be expected in the general population of crashes).

Two comparisons were employed: (1) a comparison of all July 1-7 crashes against all crashes in the rest of the week periods, and (2) a comparison of the more sever crashes during July 1-7 (fatal and the highest non-fatal category) against all other crashes. This second comparison surfaced items that are more likely to cause death, and they will be referred to as *severe crashes* in the rest of this article.

HOLIDAY ITSELF

As expected, the total number of crashes on the July 4th holidays were relatively low compared to the three days before and after due to a lack of travel on the holiday itself**. In this case the 1,449 crashes on July 4th were 25% below the average of 1,920 crashes per day for all seven days. The 11 fatal crashes on the July 4th 24-hour day period, however, are highly over-represented, being 26% higher than the number of fatal crashes that would be expected from the total number of crashes that occurred on July 4th.** This holiday was also found to be highly over-represented in the two most severe non-fatal crash severities. The following display shows these results graphically.



TRAFFIC VOLUME

Consider first the blue bars, which represent the total crashes on each day. July 1 has slightly more than the average, and it is quite clear that July 4th is the lowest crash day**. This indicates that the traffic volume is significantly lower during the holiday itself, although the same cannot be said for the three days before and the three days after, which have about 3% more crashes than the average crash per day in July.** Try to just see the blue bars and ignore the others, and notice that the distribution of the 7-day period is much more uniform that any of the other bars. Then notice again that July 4th is exceptionally low in this distribution.

Now let us consider the fatal crashes given by the red bars. July 1st started out with 8 fatal crashes, which was about 10% of the 7 day period. July 7th at the other end of the display is close with a total of 9 fatal crashes. A primary cause of fatal crashes is speed, so it appears that those who have taken a July 4th holiday may well be anxious (speeding) to return home, which could be compounded with their lack of sleep and/or use of drugs (including alcohol). No simple answer can be given for the spike on July 2, but it is important to see that fatal crashes can occur at any time. While July 4th is about average for fatal crashes over the seven days, as stated above, the number of fatal crashes on that day is significantly higher than would be expected from their proportion of total crashes.

The orange bars provide an additional metric for severe crashes which tend to show the potential for additional fatal crashes, since often the only difference between a severe injury and a fatality crash is one of chance and perhaps a few miles per hour in speed. These generally follow the distribution of the total crashes. However, July 4th is the greatest exception to this rule. The high percentage of severe injuries confirms the fatal crash finding, and establishes that the crashes occurring on the 4th of July, while fewer in number, tend to be significantly more severe.

TIME

Generally, July 1-7 cases occur in mid-day when it is expected the vacation type traffic will be highest. **It is also over-represented from 9 PM until Midnight, which may reflect the use of alcohol or drugs** from those taking advantage of their days off. A very different picture emerges when we restrict the comparison to the higher severity crashes during July 1-7. **The 9 PM until midnight becomes much more pronounced, and all early morning hours are over-represented from 1:00 AM through 6:59 AM.** The obvious cause of this is Impaired Driving (AKA DUI), which we will consider next. Interestingly, the typical increases in ID-caused crashes on the weekends (especially Saturday and Sunday early mornings) were still in effect, and the holiday off-days seemed to have little change on the crashes during these hours. ADVICE: **avoid all late night hours, and especially those on weekends and before/after the July 4th holiday itself.**

ID/DUI

Considering the use of alcohol and drugs, that occurred in the more severe crashes: (1) there were 75 crashes involving alcohol during the July 1-7 period (4.8 times that expected compared to other times of year); and (2) there were 34 crashes involving drugs (6.4 times expected). This

validates that the shift in time was caused by increased use of alcohol and drugs, and it further confirms that these crashes are significantly more severe than crashes not caused by drugs or alcohol. ADVICE: never drive after using any level of drugs (even prescription) or alcohol, and do not ride with anyone who has. Further, avoid the times and locations when/where ID/DUI-caused crashes are most likely.

RESTRAINTS

The most valuable defensive action to save the lives of your passengers is proper use of restraints. The probability of a fatal crash when the occupants are not restrained is **1 in 25**, which is **45 times the probability of being killed (1 in 1129)** when properly restrained. Unfortunately, lack of proper restraints is very highly correlated with the use of alcohol/drugs as well as other risky behavior, such as very high speeds. These restraint estimates were obtained from all crashes in the 2016-2020 time-frame, but they would apply to all crashes at all times, including the days around July 4th. ADVICE: get into such a habit of buckling up that you just do not feel right riding in a motor vehicle without being properly restrained – if we all had such habits, it would save the lives of hundreds of people each year.

SPEED INDICATORS

To illustrate this vulnerability without restraints, the First Harmful Events of severe crashes, given in order of highest frequency first**: Ran Off Road (right or left), Collision with Tree, Overturn/Rollover, Collision with Ditch, Collision with Pedestrian**. There is no doubt that these events are most often caused by excessive speed. Primary Contributing Circumstances (PCC) lists "Over Speed Limit" to be the top over-represented item for severe crashes. In addition, it is clear that the other PCC items listed are heavily related to, if not directly caused by excessive speed: **Driving Too Fast for Conditions, Aggressive Operation, Swerved, and Over Correcting/Over Steering. Impaired Driving (DUI),** which is also highly correlated with excessive speed is at the top of the PCC causal list. This deadly combination was discussed in more detail above. ADVICE: recognize that you double your survival chances by reducing your speed by 10 miles per hour for all speeds over 40 MPH.

PEDESTRIANS

There were 95 pedestrians involved in July 4th week crashes over the five-year period, of which over 40 were listed as having contributing pedestrian actions. This makes the July 4th week 17.2% above what would be expected if this were an average week. Most of the more severe pedestrian crashes have been found to be the fault of the pedestrian. The following is a list of all of contributory pedestrian actions in order of highest frequency first: **Improper Crossing, Impaired Walking Alcohol/Drugs, Pedestrian Failure to Yield Right-Of-Way, In Roadway (Standing/On Knees/Lying), Darting, Inattentive e.g. Talking or Eating, Not Visible (Dark Clothing), Walking on Wrong Side of Road, and Failure to Obey Traffic Signs/Signals/Officer.** ADVICE: never assume you can be seen (especially at night) and avoid all risky actions, especially using alcohol or drugs and walking with traffic. If you are not seen, you have a greater chance of avoiding the vehicle than it does at the last second.

MOTORCYCLES

Motorcycles were found to be the most over-represented vehicle for severe crashes. With 38 severe **and 108 general crashes, these were found to be over 9 times the expected proportion of severe crashes** during the remainder of the year. ADVICE: if you are not an experienced motorcycle driver, do not venture into heavy traffic, especially that encountered before and after major holidays, such as July 4th.

Quick Summary of Interesting (Some Counterintuitive) Findings

Quick notes all for July 1-7:

- Time of day = most significant attribute – largest over-representations: mid-day 10AM to 3PM and late evening hours 9 PM until Midnight.
    - Severe crashes very significant (most over twice expected): 9PM through 7AM
- Avoid early morning Saturday and Sunday regardless of the July 4th day.
- Major problems, combinations of DUI, Speed and Aggressive Operation.
    - High severity: add Fatigued/Asleep, Ran off Road (all over twice expected)
- C017 crashes in general: collision between 2 vehicles is 10 times the next collision type.
- State and Interstate roadways will have greater volume; if there is a choice, choose the Interstate even if somewhat longer trip time.
    - Severe crashes greatly over-represented on County and State routes
- Highest frequency of First Harmful Events resulting in severe crashes:

Collision with Tree 62

Overturn/Rollover 42

Collision with Ditch 49

Collision Pedestrian 23

Ran Off Road Left 24

- Driver/Passenger failed to Use proper restraint
    - 3.4% in general
    - 23.3% for severe crashes = 8 times the non-restrained of general population
    - Prob of fatality None Used 1 in 25 = 45 times the prob if restrained
    - Prob of fatality Shoulder and Lap Belt Used 1 in 1129

- Pedestrian Violations PCC = 37
    - E Improper Crossing 21
    - Pedestrian Under the Influence 5
    - Failed to Yield the Right-of-Way 3
    - E Lying or Sitting in Roadway 1
    - E Not Visible 1
    - E Wrong Side of Road 1
    - E Distracted by Use of Electronic Communication Device 1
    - Unseen Object/Person/Vehicle 3
    - E Aggressive Operation 1

- C304 Pedestrian Actions = 43 out of 92 crashes involving 95 peds
    - Improper Crossing 16
    - Failure to Yield Right-Of-Way 6
    - In Roadway (Standing/On Knees/Lying) 5

- Darting 4
- Inattentive (Talking/Eating) 3
- Not Visible (Dark Clothing) 3
- Wrong Side of Road 2
- Improper Turn/Merge 1
- Unknown 1
- No Improper Action 1
- Failure to Obey Traffic Signs/Signals/Officer 1

- C308 – Pedestrian condition
  - Physical Impairment = 2
  - Emotional Depressed = 4
  - Under the influence = 8
  - 309 = 6 Alcohol; 310 = 7 Other Drugs

- Pedestrian crashes throughout the 5 years = 4090 in any 7 day period
  - = All ped crashes is 2.24 per day = 15.1 per 7 days
  - C057 = 92 per 5 seven-day periods =
  - See Excel Day by Severity == appears 4th week is 17.2% above normal.

- CU Type C101
  - Motorcycles are most O-R for severe crashes with 38 severe and 108 general crashes – over 9 times the expected proportion
  - C025 by C101 severity by vehicle type
  - Fatalities = 81
    - Pedestrian = 9; Motorcycle = 7
    - Pas car= 35; SUV = 13

- DUI
  - C121 General proportion = 3.8% = 511 cases alc or drugs (O-R=1.233)
  - Severe crashes = 76 = 13.01% = 4.2 times what is expected (3.11%)

- C122-3 to compare with above
  - C122 Ofcr Op Alc 4.42% 496 16.06 75 for more severe OR=4.776
  - C123 Ofcr op Drgs 1.46% 161 7.68 34 for more severe OR=6.434

- C204 General CU Sequence of Events #1
  - Ran Off Road Right 1096
  - Collision with Parked Motor Vehicle 732
  - Ran Off Road Left 630
  - Evasive Action (Swerve/Brake) 731
  - Crossed Centerline 347
  - Vehicle Defect/Component Failure 97

- C204 Severe Crashes CU Sequenced of Events #1
    - Ran Off Road Right 137
    - Ran Off Road Left 74
    - Crossed Centerline 43
    - Evasive Action (Swerve/Brake) 46
    - Collision with Non-Motorist: Pedestrian 14
    -

Additional details:

- Primary Contributing Circumstances (significantly over-represented):

ITEM	OVER EXPECTED	CRASHES (5 yrs)
DUI	25.2%	450
Over Speed Limit	32.1%	252
Fatigued/Asleep	24.5%	283
Defective Equipment	23.1%	264
Driving too Fast for Conditions	9.1%	557
Aggressive Operation	19.4%	272

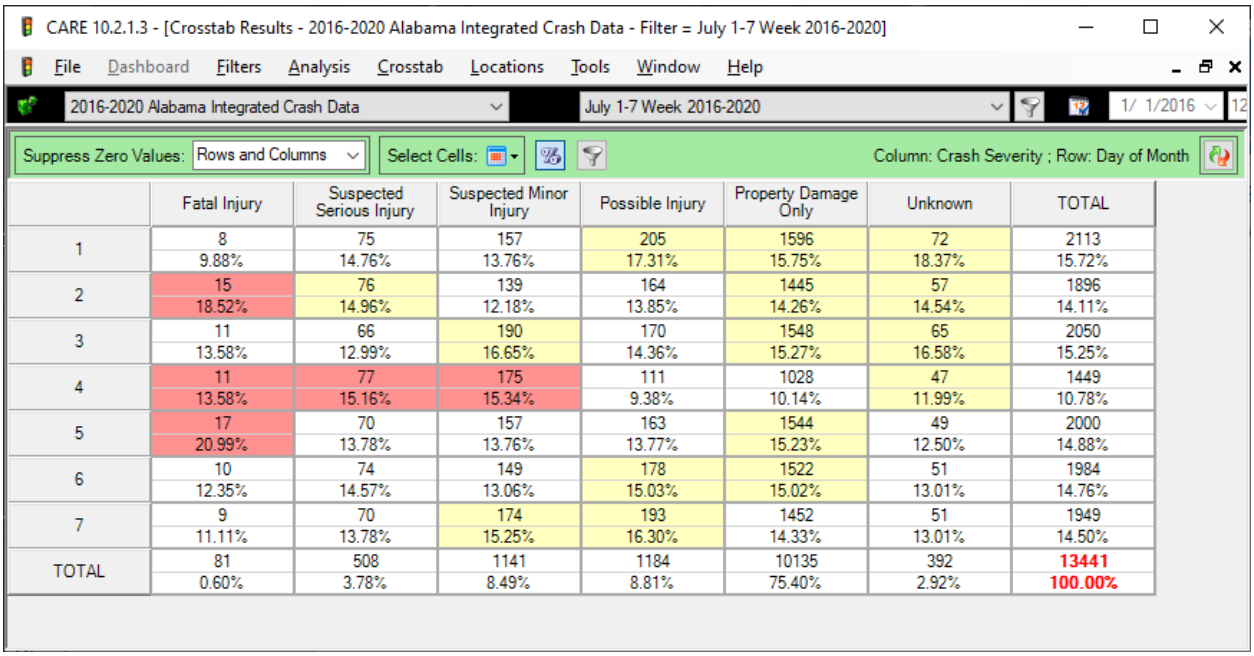
- Most Harmful Events with greater than 350 occurrences

Collision with Vehicle in Traffic	8,938
Collision with Parked Motor Vehicle	773
Overturn/Rollover	495
Collision with Tree	480
Collision with Ditch	360

July 4th Week Crashes by Severity

The following displays indicate how crashes were distributed as given by July 4th week using CY2016-2020 data.

July 4th Week Days by Severity (with percentages)



CARE 10.2.1.3 - [Crosstab Results - 2016-2020 Alabama Integrated Crash Data - Filter = July 1-7 Week 2016-2020]

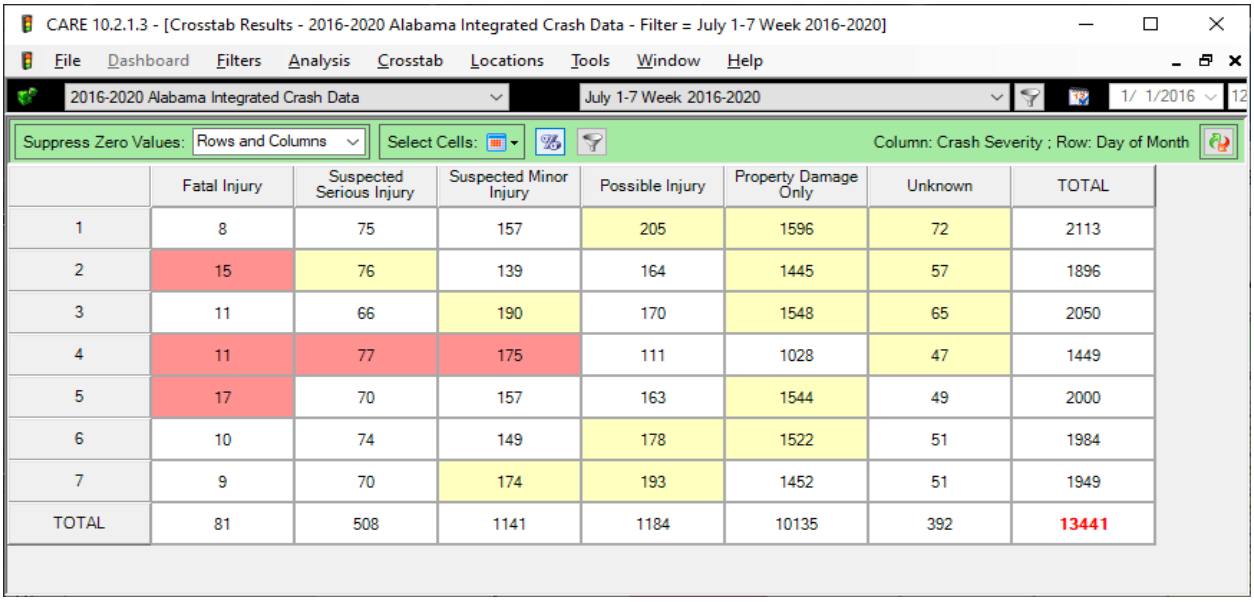
File Dashboard Filters Analysis Crosstab Locations Tools Window Help

2016-2020 Alabama Integrated Crash Data | July 1-7 Week 2016-2020 | 1/ 1/2016

Suppress Zero Values: Rows and Columns | Select Cells: | Column: Crash Severity ; Row: Day of Month

	Fatal Injury	Suspected Serious Injury	Suspected Minor Injury	Possible Injury	Property Damage Only	Unknown	TOTAL
1	8 9.88%	75 14.76%	157 13.76%	205 17.31%	1596 15.75%	72 18.37%	2113 15.72%
2	15 18.52%	76 14.96%	139 12.18%	164 13.85%	1445 14.26%	57 14.54%	1896 14.11%
3	11 13.58%	66 12.99%	190 16.65%	170 14.36%	1548 15.27%	65 16.58%	2050 15.25%
4	11 13.58%	77 15.16%	175 15.34%	111 9.38%	1028 10.14%	47 11.99%	1449 10.78%
5	17 20.99%	70 13.78%	157 13.76%	163 13.77%	1544 15.23%	49 12.50%	2000 14.88%
6	10 12.35%	74 14.57%	149 13.06%	178 15.03%	1522 15.02%	51 13.01%	1984 14.76%
7	9 11.11%	70 13.78%	174 15.25%	193 16.30%	1452 14.33%	51 13.01%	1949 14.50%
TOTAL	81 0.60%	508 3.78%	1141 8.49%	1184 8.81%	10135 75.40%	392 2.92%	13441 100.00%

July 4th Week Days by Severity (without percentages)



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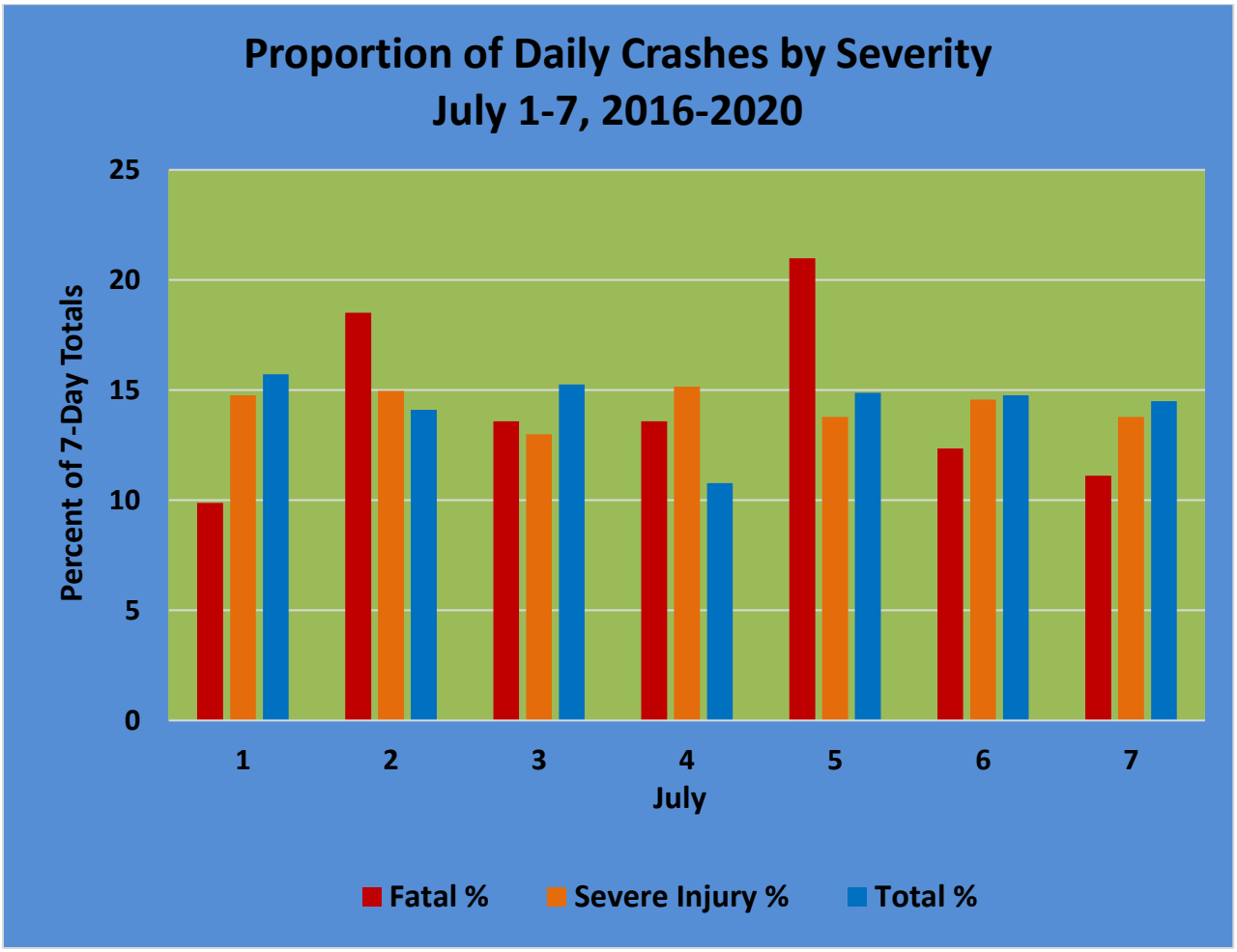
	Fatal Injury	Suspected Serious Injury	Suspected Minor Injury	Possible Injury	Property Damage Only	Unknown	TOTAL
1	8	75	157	205	1596	72	2113
2	15	76	139	164	1445	57	1896
3	11	66	190	170	1548	65	2050
4	11	77	175	111	1028	47	1449
5	17	70	157	163	1544	49	2000
6	10	74	149	178	1522	51	1984
7	9	70	174	193	1452	51	1949
TOTAL	81	508	1141	1184	10135	392	13441

As expected, the total number of crashes on the July 4th holiday itself was down, in this case to 1,449 crashes as compared to the averages of 1,920 crashes per day for all seven days. The 11 fatal crashes on the July 4th 24-hour day period, however, are highly over-represented, as indicated by the red background. Red indicates more than 10% over-represented, while the yellow background indicates any over-representation above average, and the white backgrounds are under-represented. July 4th was also highly over-represented in the two most severe non-fatal crash severities. The following display shows a different perspective of those above.



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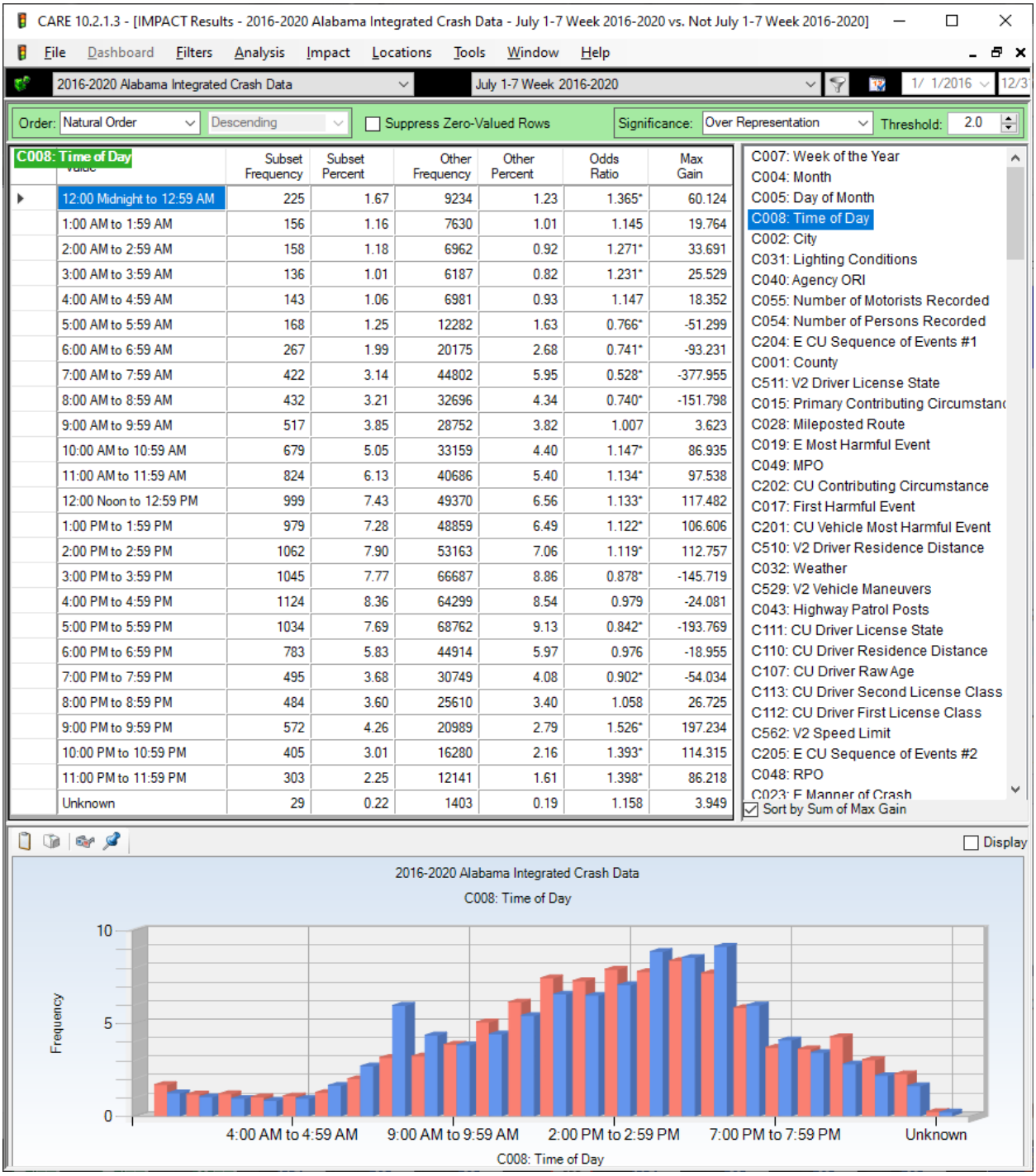
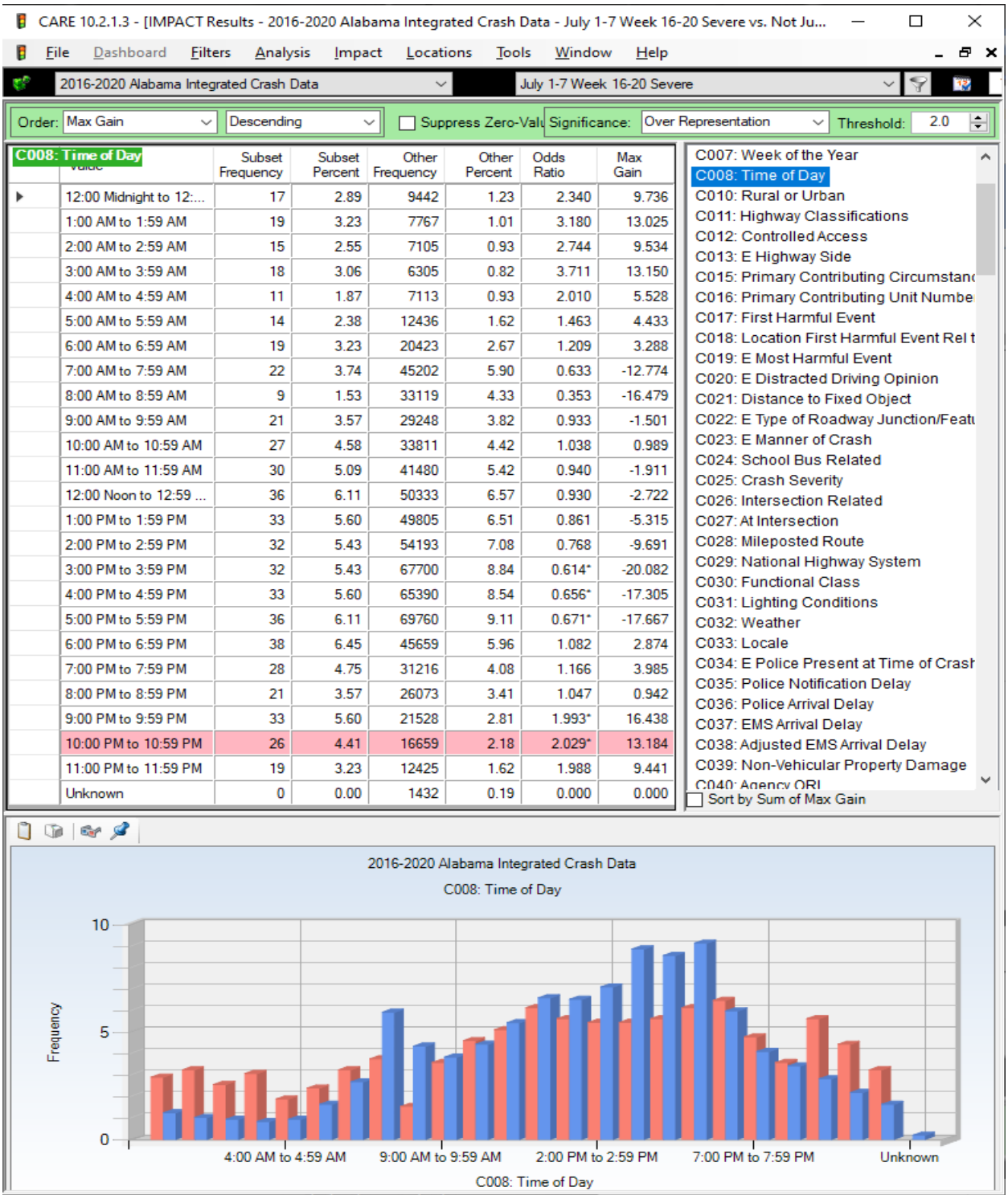
The orange bars provide an additional metric for severe crashes which tend to show the potential for additional fatal crashes, since often the only difference between a severe injury and a fatality is one of chance and perhaps a few miles per hour in speed. These generally follow the distribution of the total crashes. However July 4th is the greatest exception to this rule. The high percentage of severe injuries confirms the fatal crash finding, and establishes that the crashes occurring on the 4th of July, although fewer in number, tend to be significantly more severe.

IMPACT Analyses Revealing Crash Differences in July 4th Weeks 2016-20

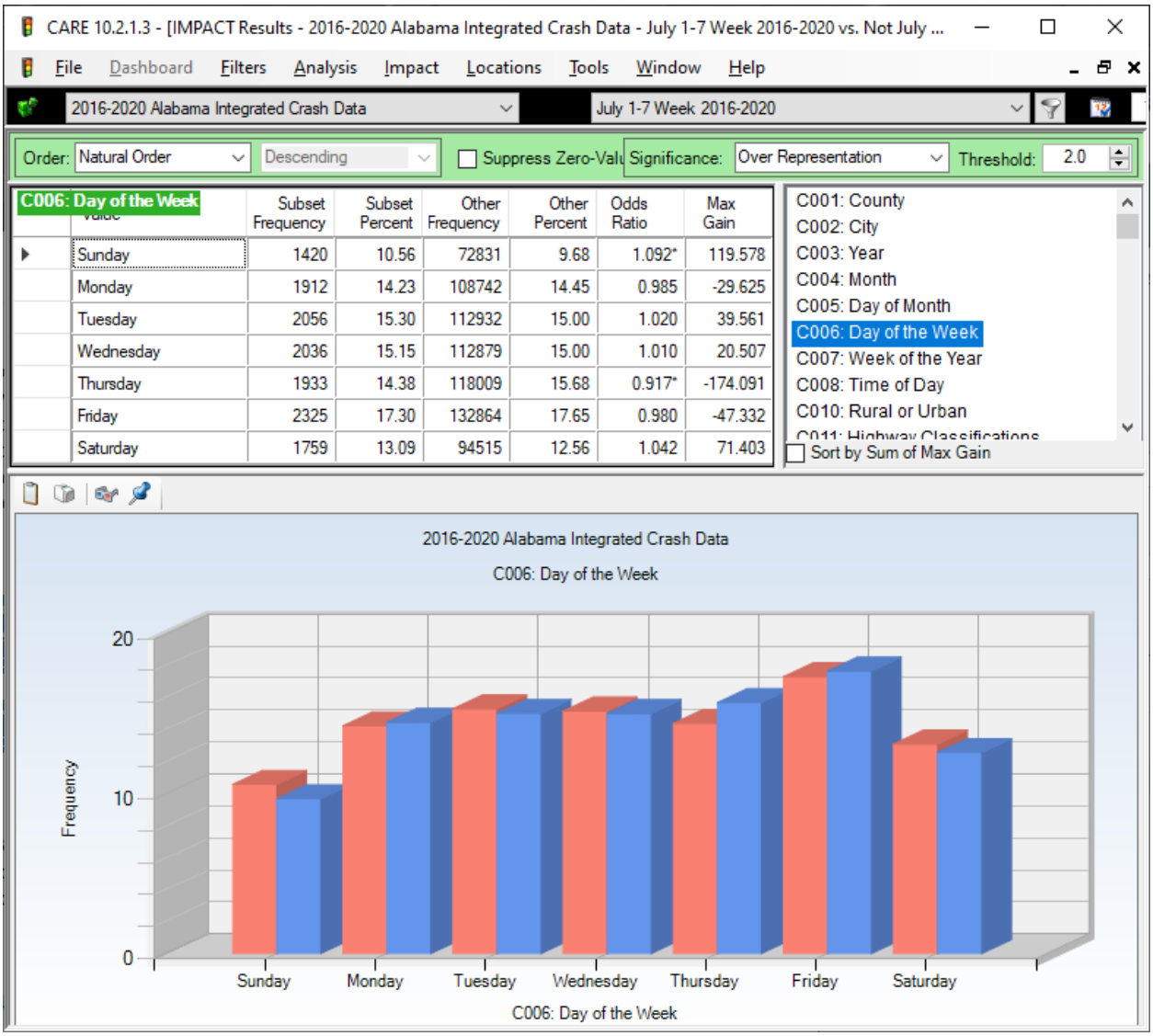
C008 Time of Day



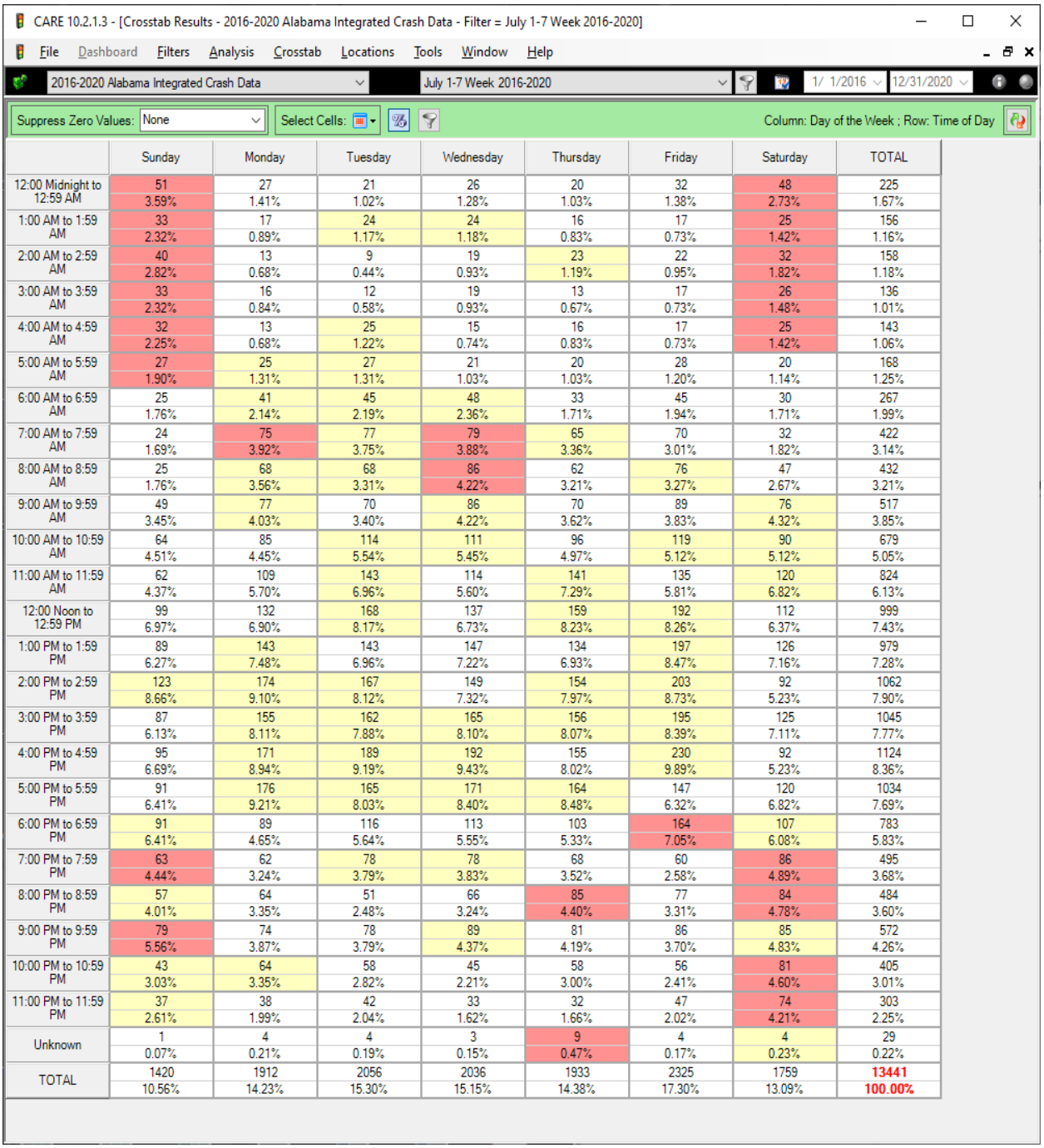
C008 Severe Crashes Time of Day



C006 Day of the Week

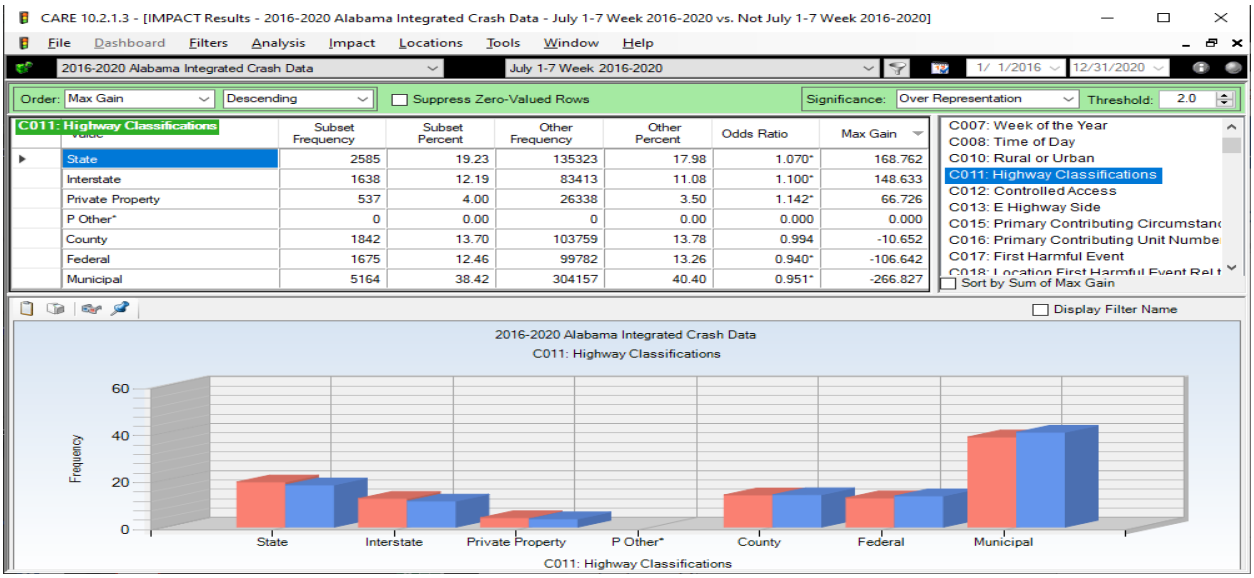


Time of Day by Day of the Week

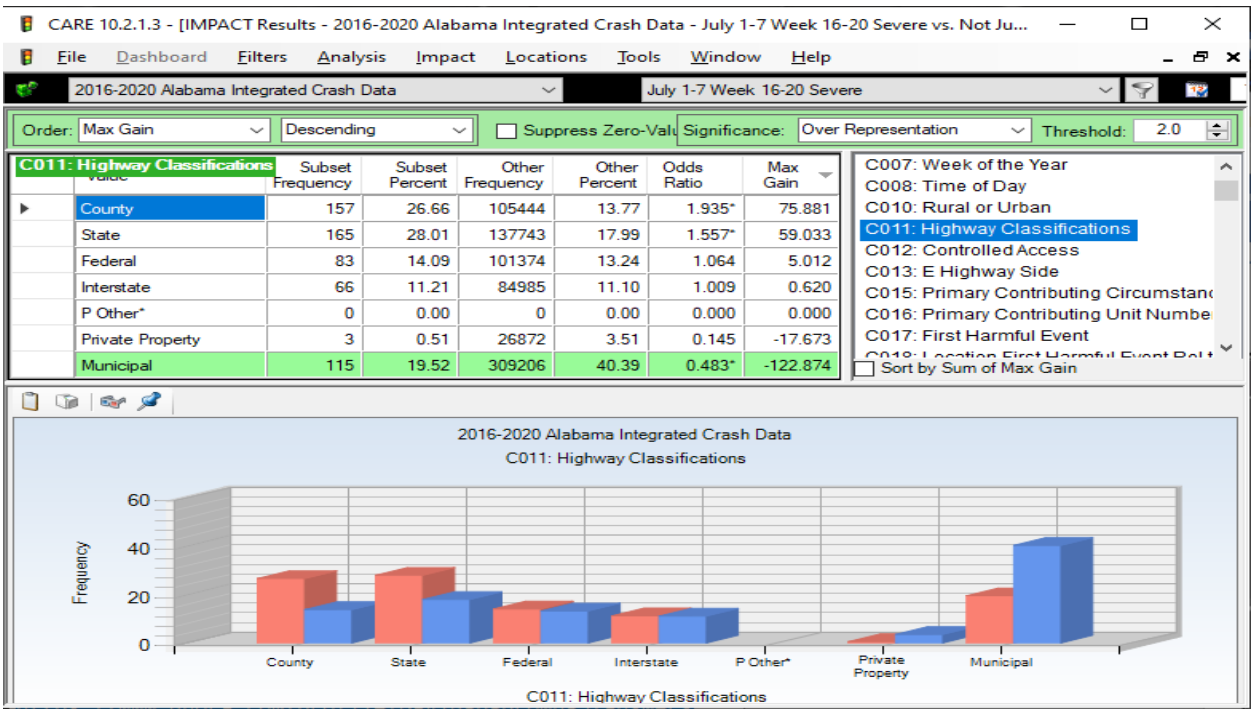


	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	TOTAL
12:00 Midnight to 12:59 AM	51 3.59%	27 1.41%	21 1.02%	26 1.28%	20 1.03%	32 1.38%	48 2.73%	225 1.67%
1:00 AM to 1:59 AM	33 2.32%	17 0.89%	24 1.17%	24 1.18%	16 0.83%	17 0.73%	25 1.42%	156 1.16%
2:00 AM to 2:59 AM	40 2.82%	13 0.68%	9 0.44%	19 0.93%	23 1.19%	22 0.95%	32 1.82%	158 1.18%
3:00 AM to 3:59 AM	33 2.32%	16 0.84%	12 0.58%	19 0.93%	13 0.67%	17 0.73%	26 1.48%	136 1.01%
4:00 AM to 4:59 AM	32 2.25%	13 0.68%	25 1.22%	15 0.74%	16 0.83%	17 0.73%	25 1.42%	143 1.06%
5:00 AM to 5:59 AM	27 1.90%	25 1.31%	27 1.31%	21 1.03%	20 1.03%	28 1.20%	20 1.14%	168 1.25%
6:00 AM to 6:59 AM	25 1.76%	41 2.14%	45 2.19%	48 2.36%	33 1.71%	45 1.94%	30 1.71%	267 1.99%
7:00 AM to 7:59 AM	24 1.69%	75 3.92%	77 3.75%	79 3.88%	65 3.36%	70 3.01%	32 1.82%	422 3.14%
8:00 AM to 8:59 AM	25 1.76%	68 3.56%	68 3.31%	86 4.22%	62 3.21%	76 3.27%	47 2.67%	432 3.21%
9:00 AM to 9:59 AM	49 3.45%	77 4.03%	70 3.40%	86 4.22%	70 3.62%	89 3.83%	76 4.32%	517 3.85%
10:00 AM to 10:59 AM	64 4.51%	85 4.45%	114 5.54%	111 5.45%	96 4.97%	119 5.12%	90 5.12%	679 5.05%
11:00 AM to 11:59 AM	62 4.37%	109 5.70%	143 6.96%	114 5.60%	141 7.29%	135 5.81%	120 6.82%	824 6.13%
12:00 Noon to 12:59 PM	99 6.97%	132 6.90%	168 8.17%	137 6.73%	159 8.23%	192 8.26%	112 6.37%	999 7.43%
1:00 PM to 1:59 PM	89 6.27%	143 7.48%	143 6.96%	147 7.22%	134 6.93%	197 8.47%	126 7.16%	979 7.28%
2:00 PM to 2:59 PM	123 8.66%	174 9.10%	167 8.12%	149 7.32%	154 7.97%	203 8.73%	92 5.23%	1062 7.90%
3:00 PM to 3:59 PM	87 6.13%	155 8.11%	162 7.88%	165 8.10%	156 8.07%	195 8.39%	125 7.11%	1045 7.77%
4:00 PM to 4:59 PM	95 6.69%	171 8.94%	189 9.19%	192 9.43%	155 8.02%	230 9.89%	92 5.23%	1124 8.36%
5:00 PM to 5:59 PM	91 6.41%	176 9.21%	165 8.03%	171 8.40%	164 8.48%	147 6.32%	120 6.82%	1034 7.69%
6:00 PM to 6:59 PM	91 6.41%	89 4.65%	116 5.64%	113 5.55%	103 5.33%	164 7.05%	107 6.08%	783 5.83%
7:00 PM to 7:59 PM	63 4.44%	62 3.24%	78 3.79%	78 3.83%	68 3.52%	60 2.58%	86 4.89%	495 3.68%
8:00 PM to 8:59 PM	57 4.01%	64 3.35%	51 2.48%	66 3.24%	85 4.40%	77 3.31%	84 4.78%	484 3.60%
9:00 PM to 9:59 PM	79 5.56%	74 3.87%	78 3.79%	89 4.37%	81 4.19%	86 3.70%	85 4.83%	572 4.26%
10:00 PM to 10:59 PM	43 3.03%	64 3.35%	58 2.82%	45 2.21%	58 3.00%	56 2.41%	81 4.60%	405 3.01%
11:00 PM to 11:59 PM	37 2.61%	38 1.99%	42 2.04%	33 1.62%	32 1.66%	47 2.02%	74 4.21%	303 2.25%
Unknown	1 0.07%	4 0.21%	4 0.19%	3 0.15%	9 0.47%	4 0.17%	4 0.23%	29 0.22%
TOTAL	1420 10.56%	1912 14.23%	2056 15.30%	2036 15.15%	1933 14.38%	2325 17.30%	1759 13.09%	13441 100.00%

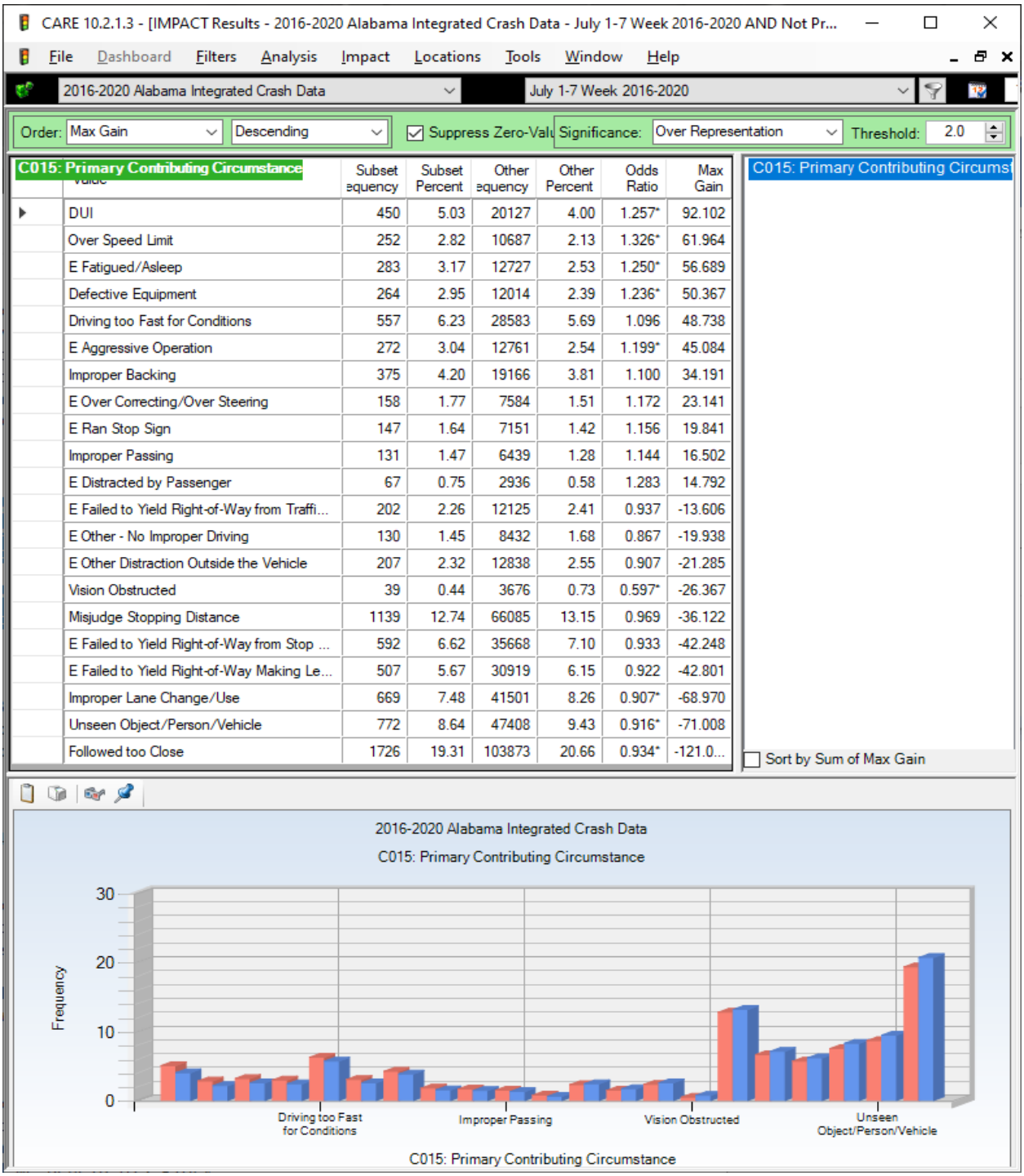
C011 Highway Classification



C011 Severe Crashes Highway Classification



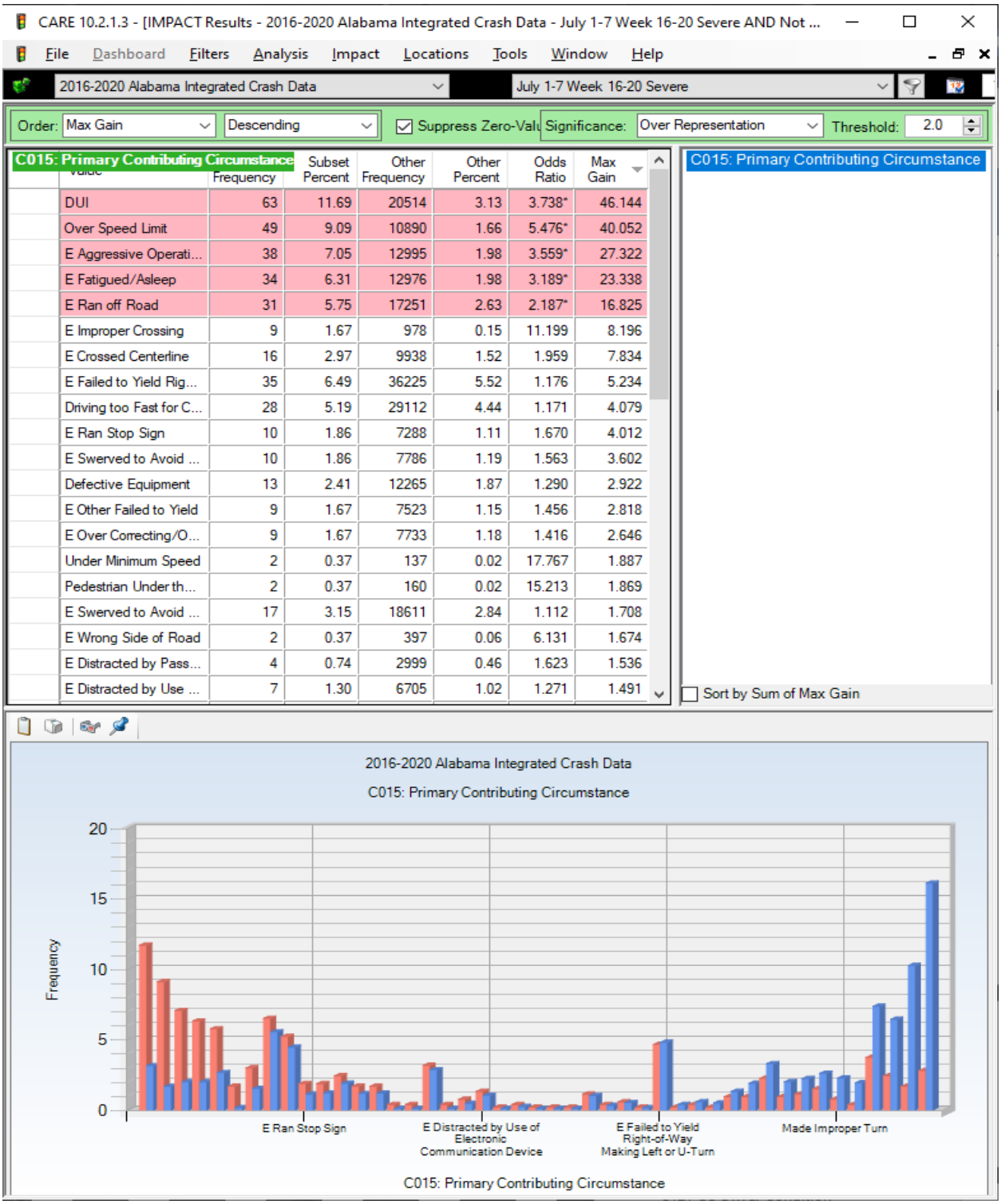
C015 Primary Contributing Circumstances



C015: Primary Contributing Circumstance	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
DUI	450	5.03	20127	4.00	1.257*	92.102
Over Speed Limit	252	2.82	10687	2.13	1.326*	61.964
E Fatigued/Asleep	283	3.17	12727	2.53	1.250*	56.689
Defective Equipment	264	2.95	12014	2.39	1.236*	50.367
Driving too Fast for Conditions	557	6.23	28583	5.69	1.096	48.738
E Aggressive Operation	272	3.04	12761	2.54	1.199*	45.084
Improper Backing	375	4.20	19166	3.81	1.100	34.191
E Over Correcting/Over Steering	158	1.77	7584	1.51	1.172	23.141
E Ran Stop Sign	147	1.64	7151	1.42	1.156	19.841
Improper Passing	131	1.47	6439	1.28	1.144	16.502
E Distracted by Passenger	67	0.75	2936	0.58	1.283	14.792
E Failed to Yield Right-of-Way from Traffi...	202	2.26	12125	2.41	0.937	-13.606
E Other - No Improper Driving	130	1.45	8432	1.68	0.867	-19.938
E Other Distraction Outside the Vehicle	207	2.32	12838	2.55	0.907	-21.285
Vision Obstructed	39	0.44	3676	0.73	0.597*	-26.367
Misjudge Stopping Distance	1139	12.74	66085	13.15	0.969	-36.122
E Failed to Yield Right-of-Way from Stop ...	592	6.62	35668	7.10	0.933	-42.248
E Failed to Yield Right-of-Way Making Le...	507	5.67	30919	6.15	0.922	-42.801
Improper Lane Change/Use	669	7.48	41501	8.26	0.907*	-68.970
Unseen Object/Person/Vehicle	772	8.64	47408	9.43	0.916*	-71.008
Followed too Close	1726	19.31	103873	20.66	0.934*	-121.0...

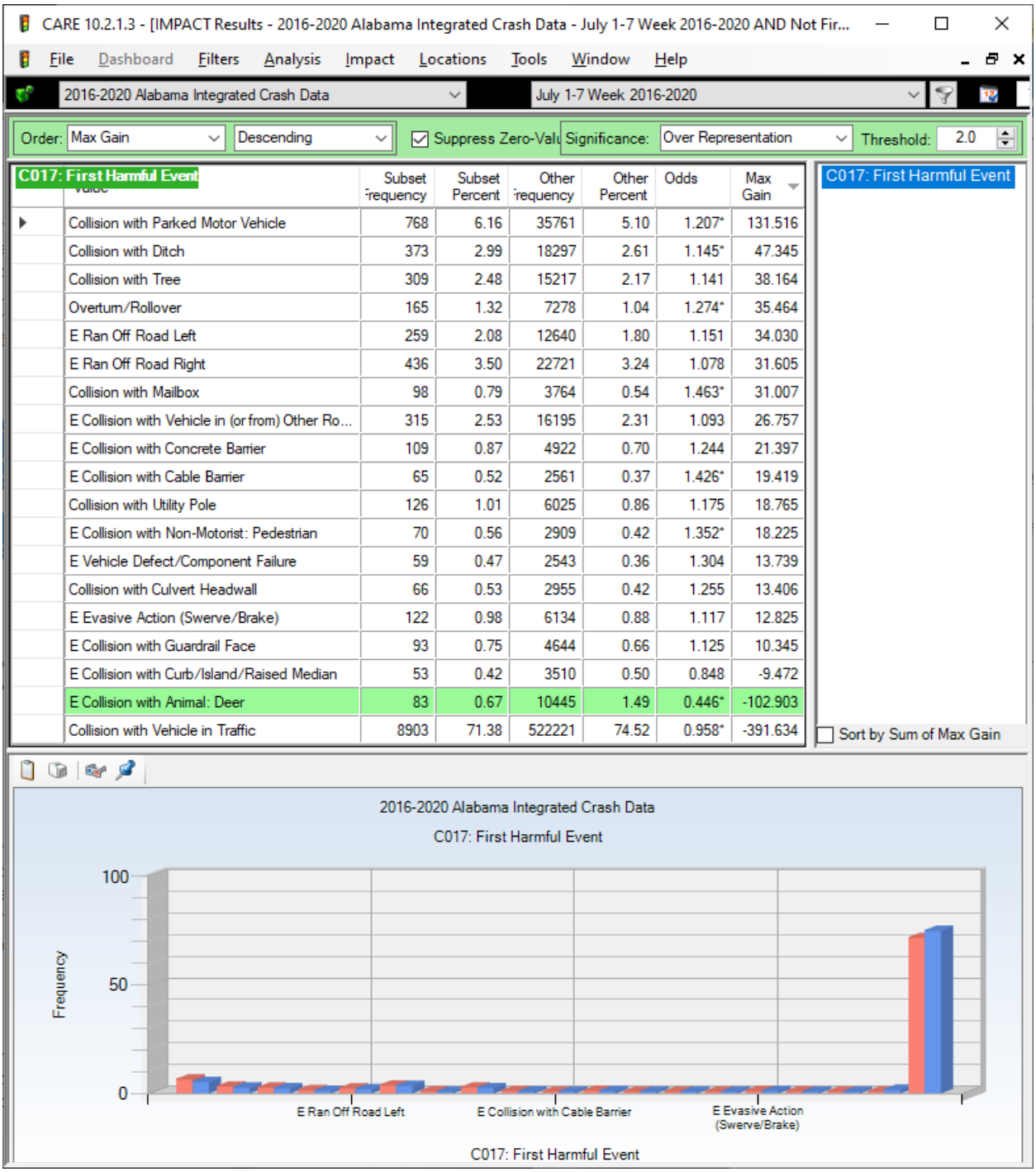
Reran excluding all items that had MaxGains < Abs(15)

C015 Severe Crashes Primary Contributing Circumstances



C015: Primary Contributing Circumstance	Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
DUI	63	11.69	20514	3.13	3.738*	46.144
Over Speed Limit	49	9.09	10890	1.66	5.476*	40.052
E Aggressive Operati...	38	7.05	12995	1.98	3.559*	27.322
E Fatigued/Asleep	34	6.31	12976	1.98	3.189*	23.338
E Ran off Road	31	5.75	17251	2.63	2.187*	16.825
E Improper Crossing	9	1.67	978	0.15	11.199	8.196
E Crossed Centerline	16	2.97	9938	1.52	1.959	7.834
E Failed to Yield Rig...	35	6.49	36225	5.52	1.176	5.234
Driving too Fast for C...	28	5.19	29112	4.44	1.171	4.079
E Ran Stop Sign	10	1.86	7288	1.11	1.670	4.012
E Swerved to Avoid ...	10	1.86	7786	1.19	1.563	3.602
Defective Equipment	13	2.41	12265	1.87	1.290	2.922
E Other Failed to Yield	9	1.67	7523	1.15	1.456	2.818
E Over Correcting/O...	9	1.67	7733	1.18	1.416	2.646
Under Minimum Speed	2	0.37	137	0.02	17.767	1.887
Pedestrian Under th...	2	0.37	160	0.02	15.213	1.869
E Swerved to Avoid ...	17	3.15	18611	2.84	1.112	1.708
E Wrong Side of Road	2	0.37	397	0.06	6.131	1.674
E Distracted by Pass...	4	0.74	2999	0.46	1.623	1.536
E Distracted by Use ...	7	1.30	6705	1.02	1.271	1.491

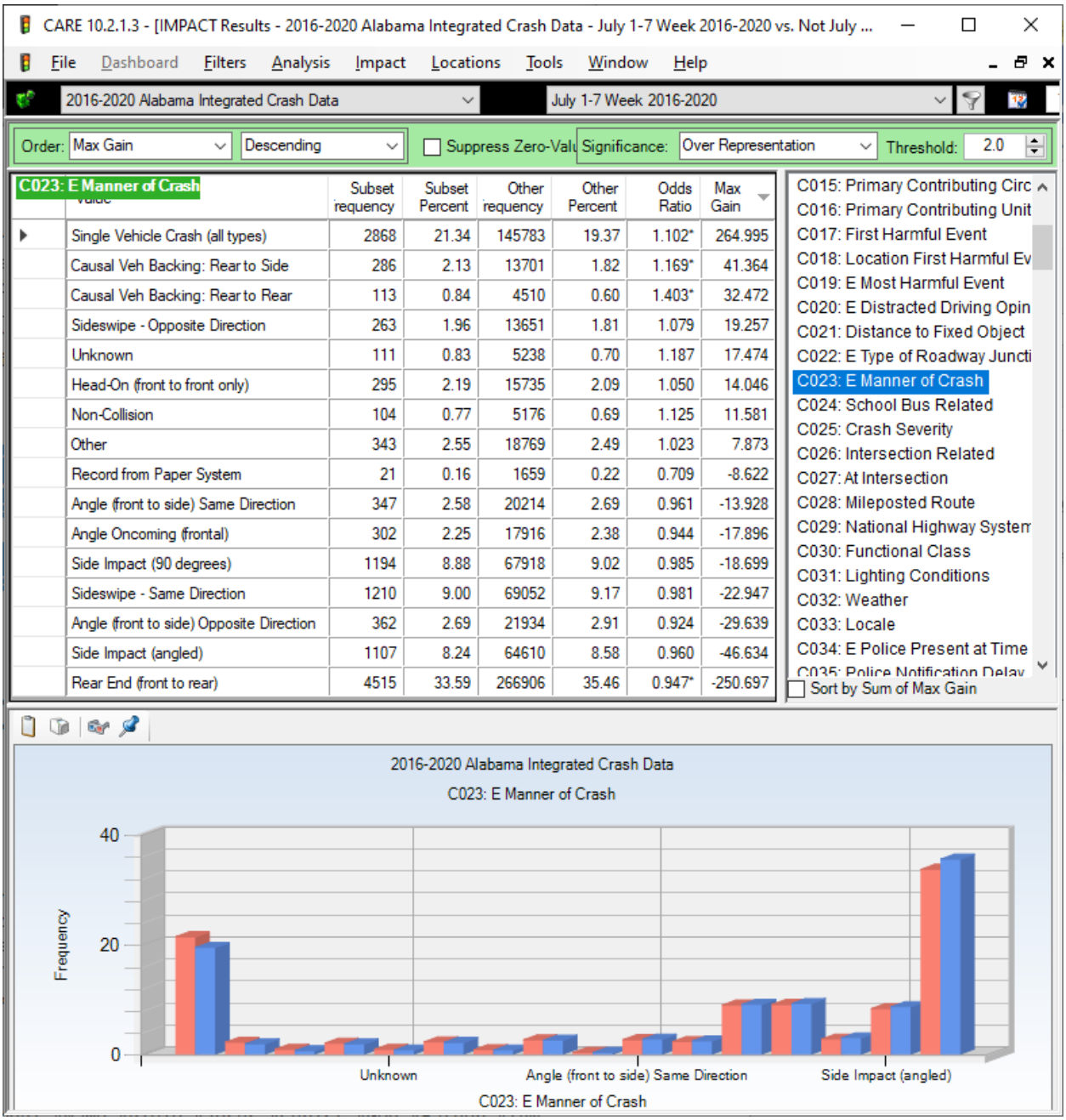
C017 First Harmful Event



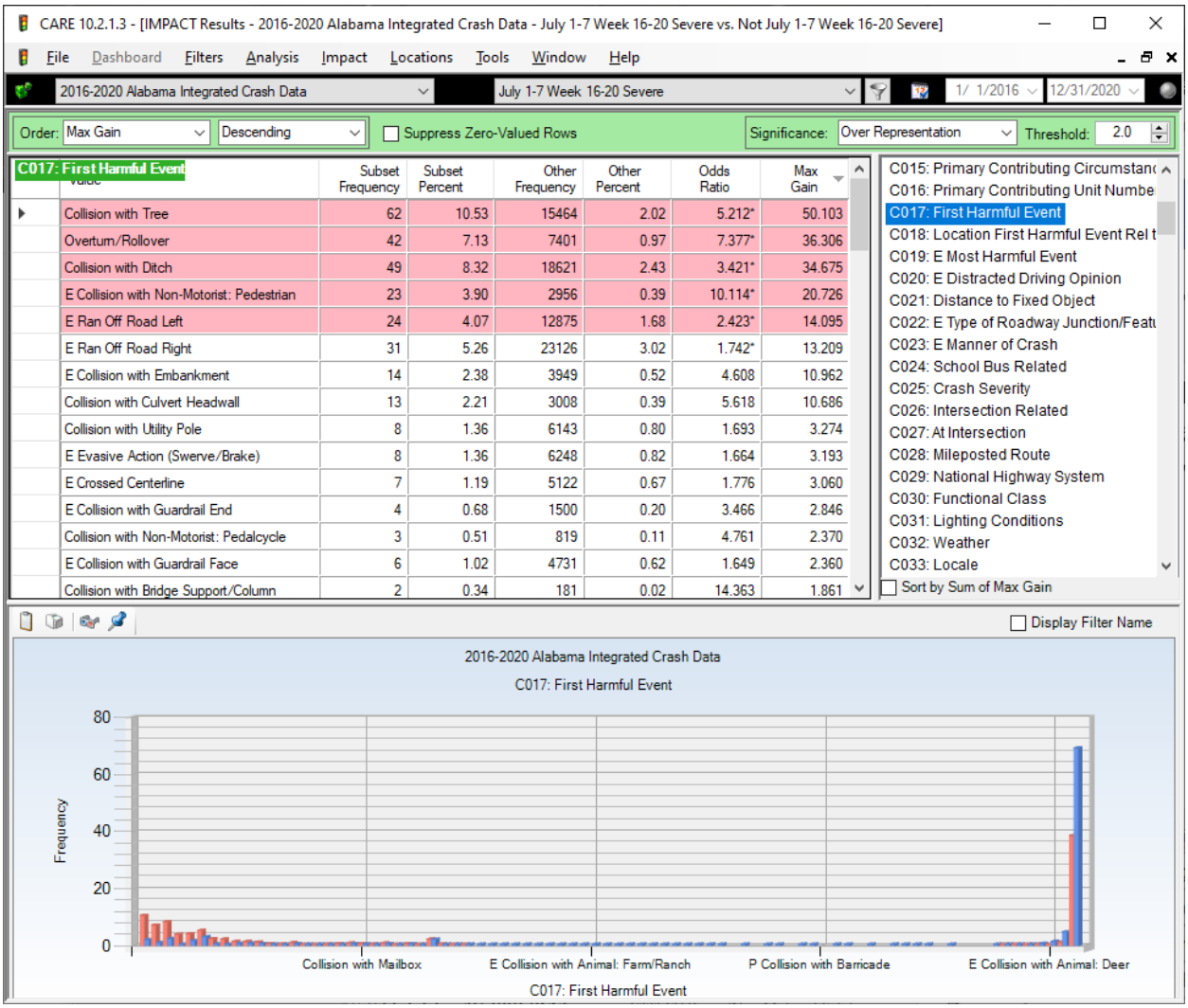
C017: First Harmful Event	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds	Max Gain
Collision with Parked Motor Vehicle	768	6.16	35761	5.10	1.207*	131.516
Collision with Ditch	373	2.99	18297	2.61	1.145*	47.345
Collision with Tree	309	2.48	15217	2.17	1.141	38.164
Overturn/Rollover	165	1.32	7278	1.04	1.274*	35.464
E Ran Off Road Left	259	2.08	12640	1.80	1.151	34.030
E Ran Off Road Right	436	3.50	22721	3.24	1.078	31.605
Collision with Mailbox	98	0.79	3764	0.54	1.463*	31.007
E Collision with Vehicle in (or from) Other Ro...	315	2.53	16195	2.31	1.093	26.757
E Collision with Concrete Barrier	109	0.87	4922	0.70	1.244	21.397
E Collision with Cable Barrier	65	0.52	2561	0.37	1.426*	19.419
Collision with Utility Pole	126	1.01	6025	0.86	1.175	18.765
E Collision with Non-Motorist: Pedestrian	70	0.56	2909	0.42	1.352*	18.225
E Vehicle Defect/Component Failure	59	0.47	2543	0.36	1.304	13.739
Collision with Culvert Headwall	66	0.53	2955	0.42	1.255	13.406
E Evasive Action (Swerve/Brake)	122	0.98	6134	0.88	1.117	12.825
E Collision with Guardrail Face	93	0.75	4644	0.66	1.125	10.345
E Collision with Curb/Island/Raised Median	53	0.42	3510	0.50	0.848	-9.472
E Collision with Animal: Deer	83	0.67	10445	1.49	0.446*	-102.903
Collision with Vehicle in Traffic	8903	71.38	522221	74.52	0.958*	-391.634

Reran excluding all items that had MaxGains < Abs(10).

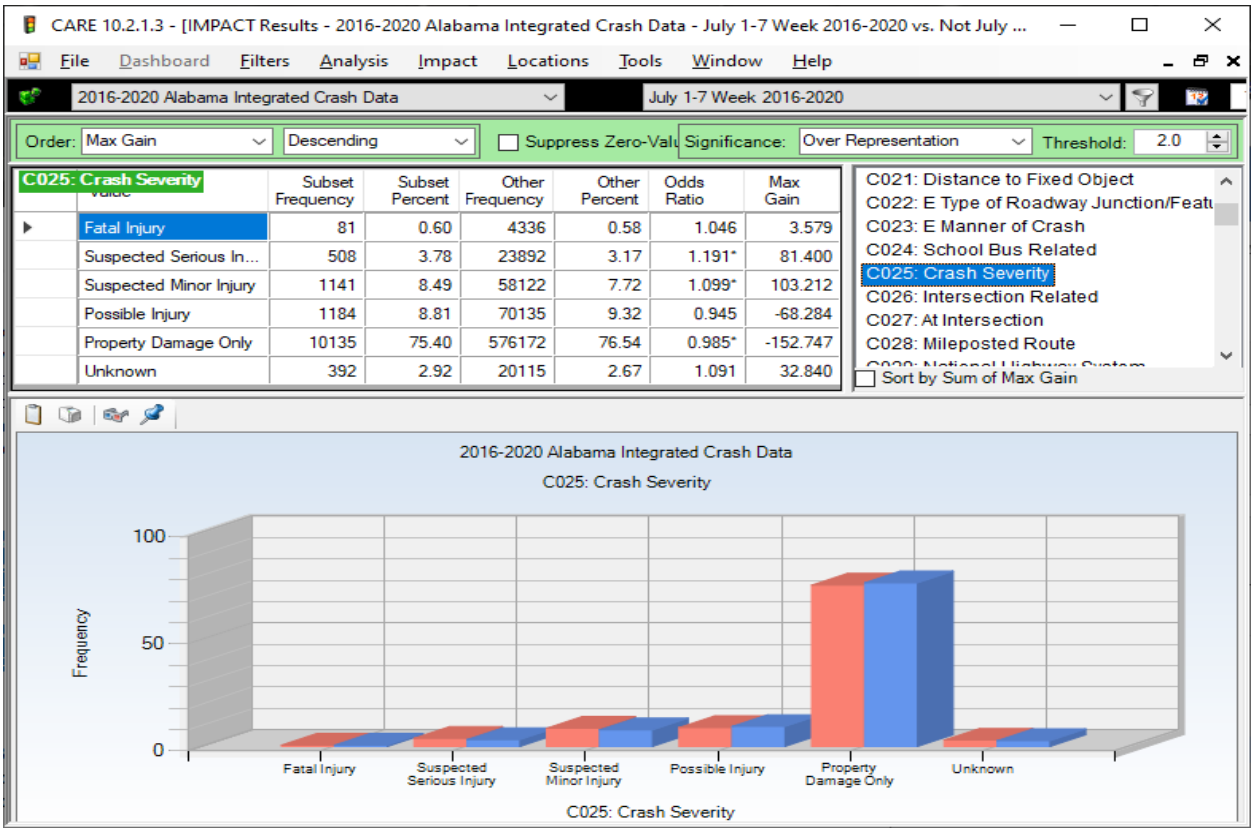
C023 Manner of Crash



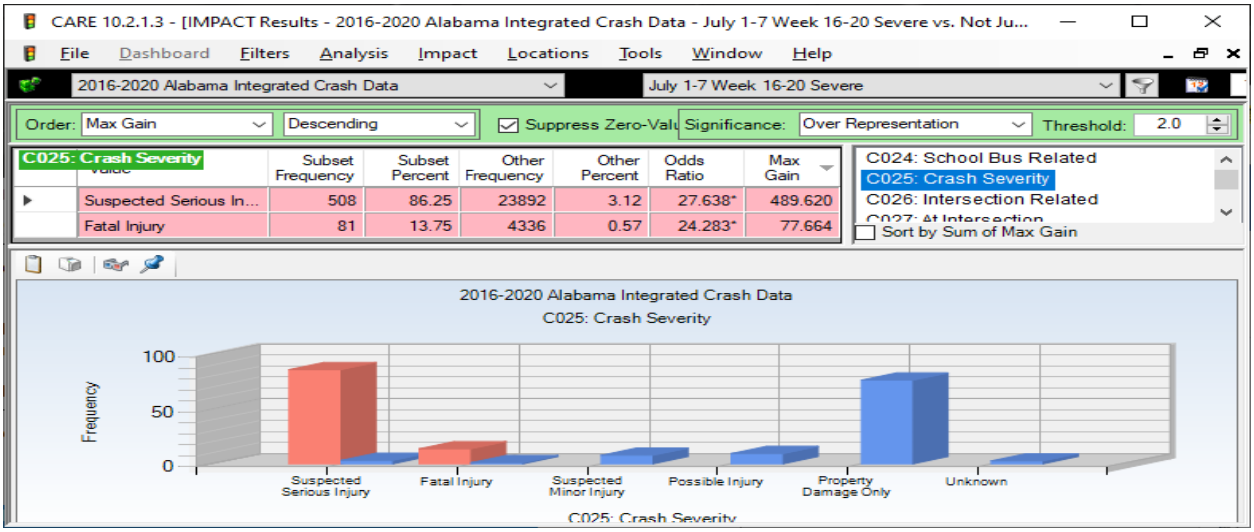
C023 Severe Crashes Manner of Crash



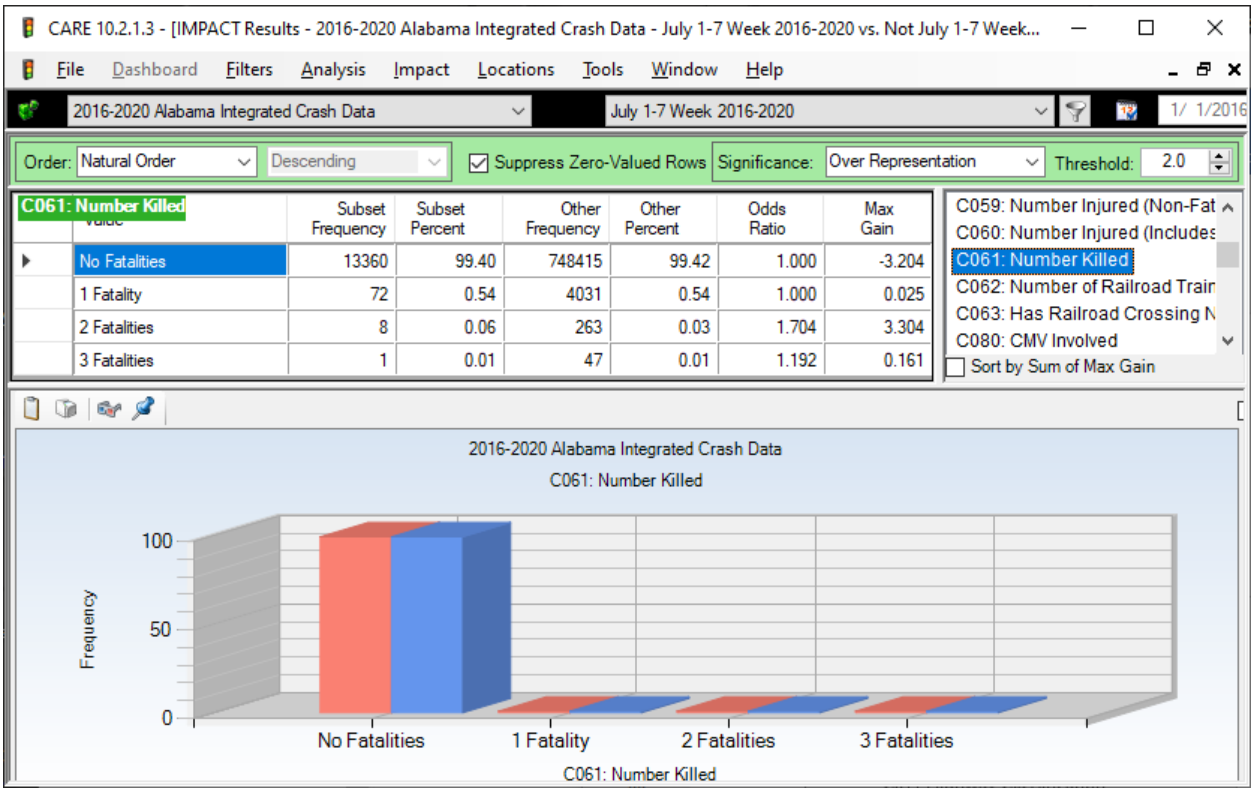
C026 Crash Severity



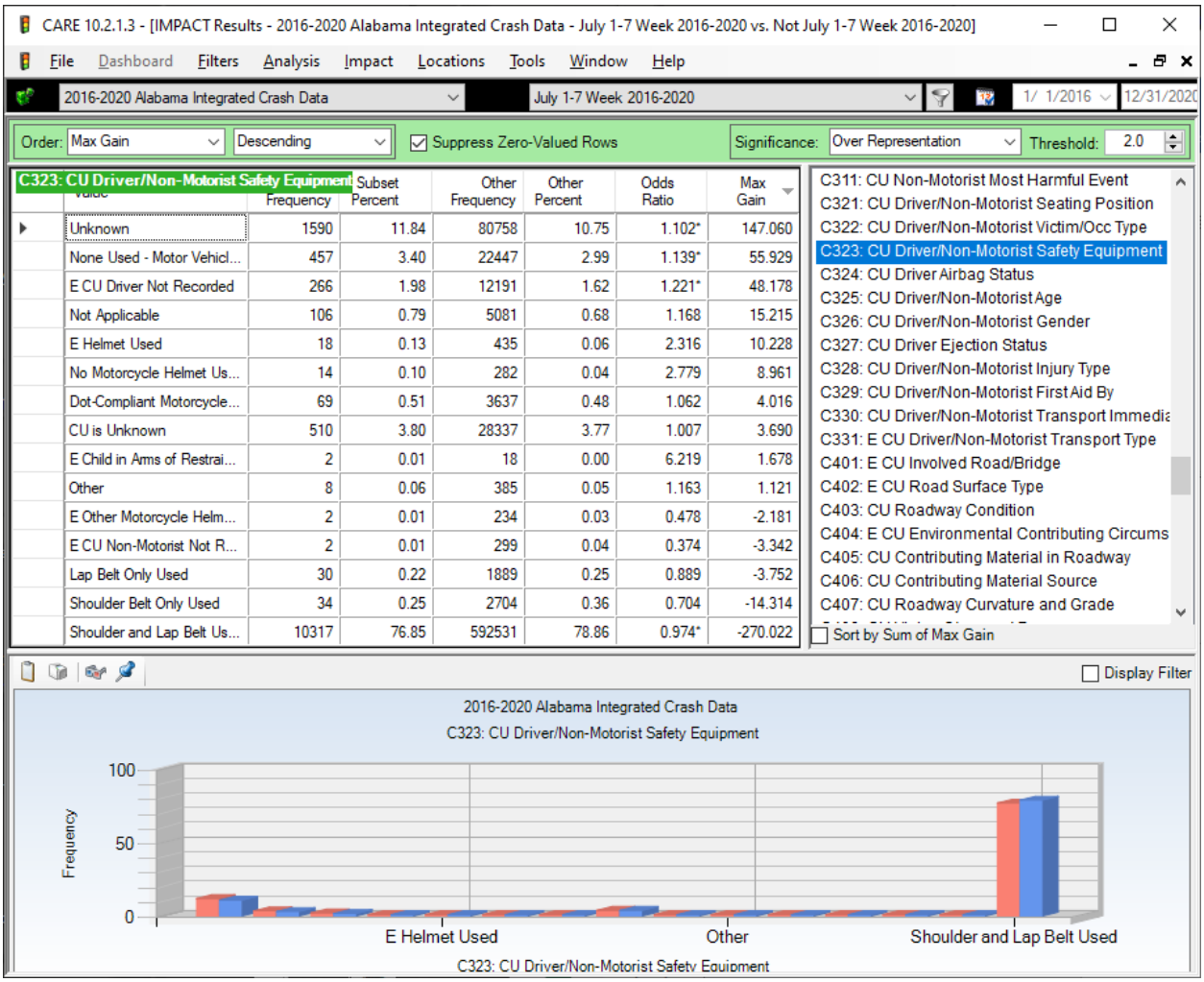
C026 Severe Crashes Crash Severity



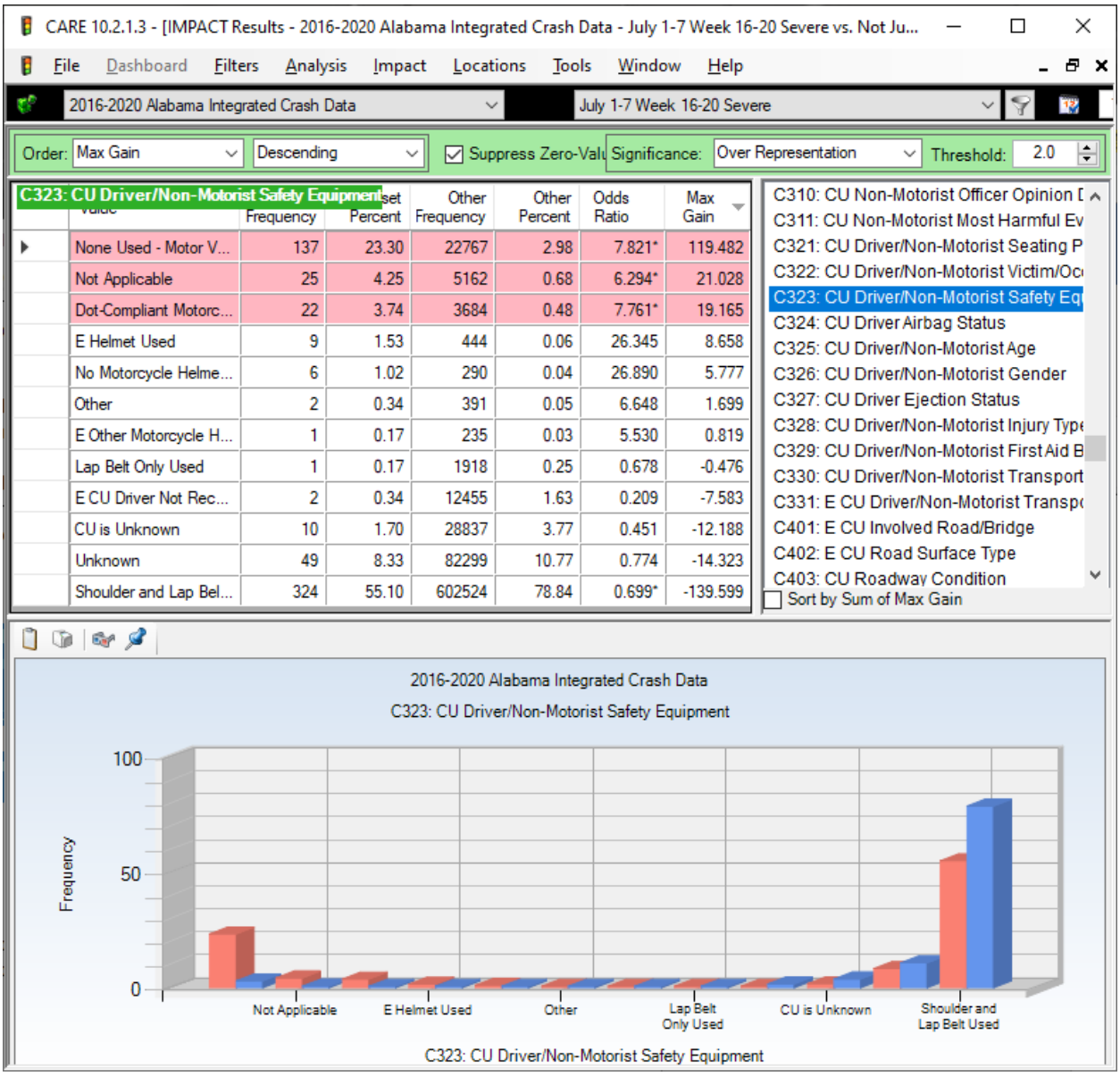
C061 Number Killed



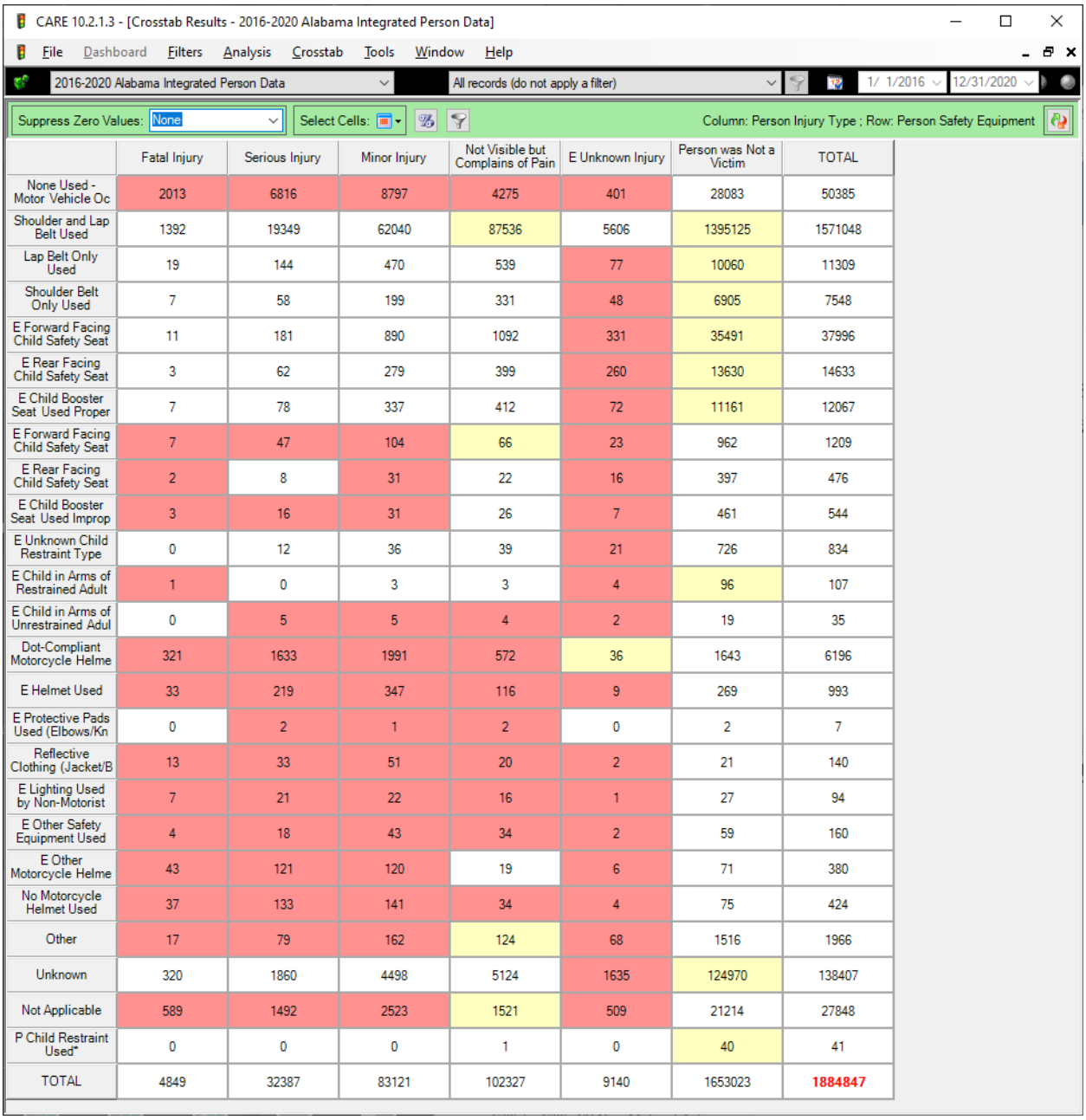
C323 CU Driver/Non Motorist Safety Equipment



C323 Severe Crashes CU Driver/Non Motorist Safety Equipment



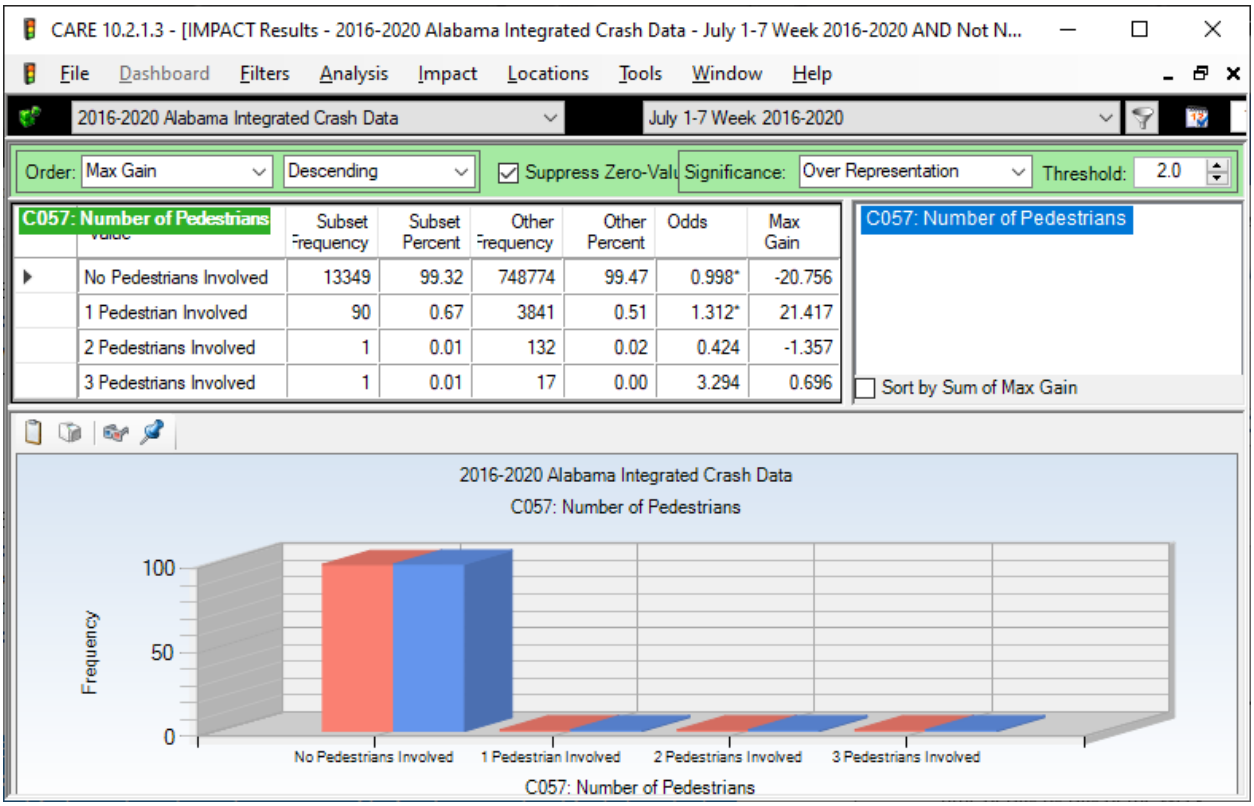
P328 Crosstab: Injury Type by P323 Restraint Use (all data 2016-2020)



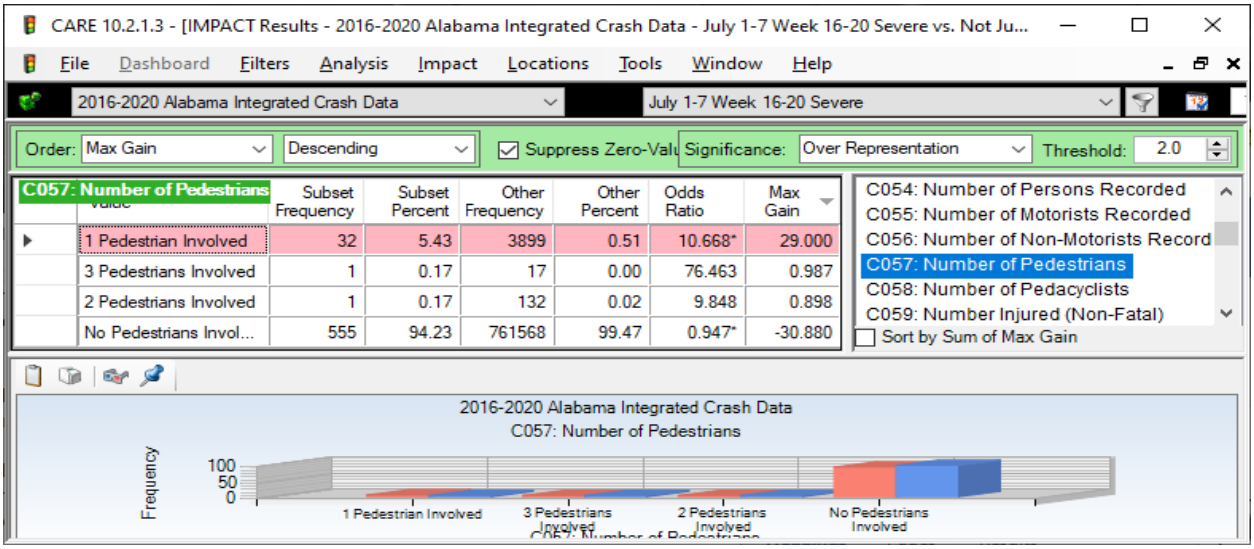
	Fatal Injury	Serious Injury	Minor Injury	Not Visible but Complains of Pain	E Unknown Injury	Person was Not a Victim	TOTAL
None Used - Motor Vehicle Oc	2013	6816	8797	4275	401	28083	50385
Shoulder and Lap Belt Used	1392	19349	62040	87536	5606	1395125	1571048
Lap Belt Only Used	19	144	470	539	77	10060	11309
Shoulder Belt Only Used	7	58	199	331	48	6905	7548
E Forward Facing Child Safety Seat	11	181	890	1092	331	35491	37996
E Rear Facing Child Safety Seat	3	62	279	399	260	13630	14633
E Child Booster Seat Used Proper	7	78	337	412	72	11161	12067
E Forward Facing Child Safety Seat	7	47	104	66	23	962	1209
E Rear Facing Child Safety Seat	2	8	31	22	16	397	476
E Child Booster Seat Used Improp	3	16	31	26	7	461	544
E Unknown Child Restraint Type	0	12	36	39	21	726	834
E Child in Arms of Restrained Adult	1	0	3	3	4	96	107
E Child in Arms of Unrestrained Adul	0	5	5	4	2	19	35
Dot-Compliant Motorcycle Helme	321	1633	1991	572	36	1643	6196
E Helmet Used	33	219	347	116	9	269	993
E Protective Pads Used (Elbows/Kn	0	2	1	2	0	2	7
Reflective Clothing (Jacket/B	13	33	51	20	2	21	140
E Lighting Used by Non-Motorist	7	21	22	16	1	27	94
E Other Safety Equipment Used	4	18	43	34	2	59	160
E Other Motorcycle Helme	43	121	120	19	6	71	380
No Motorcycle Helmet Used	37	133	141	34	4	75	424
Other	17	79	162	124	68	1516	1966
Unknown	320	1860	4498	5124	1635	124970	138407
Not Applicable	589	1492	2523	1521	509	21214	27848
P Child Restraint Used*	0	0	0	1	0	40	41
TOTAL	4849	32387	83121	102327	9140	1653023	1884847

Prob of fatality None Used — 1 in 25 = 45 times the prob if restrained
Prob of fatality Shoulder and Lap Belt Used — 1 in 1129

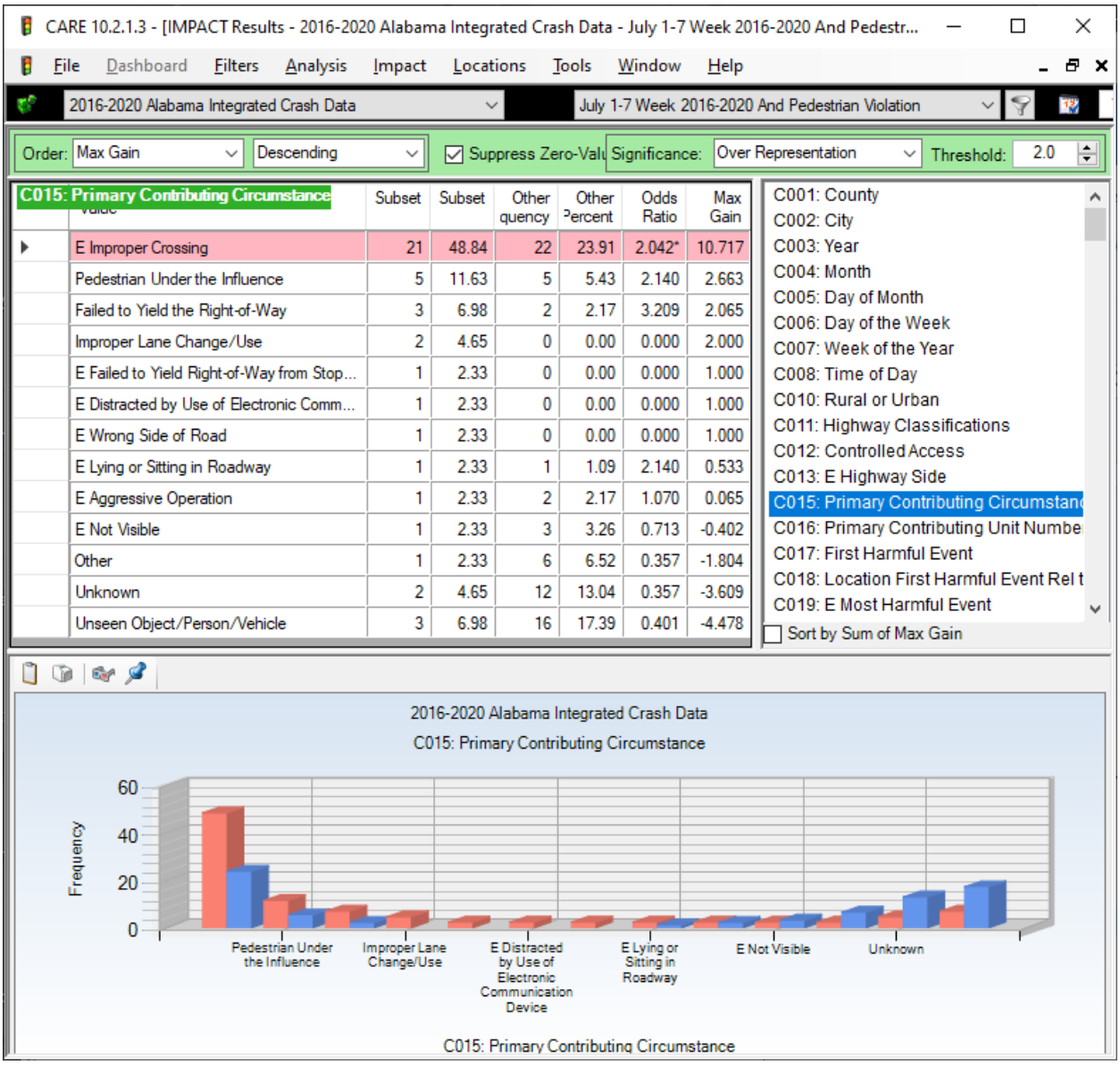
C057 Number of Pedestrians



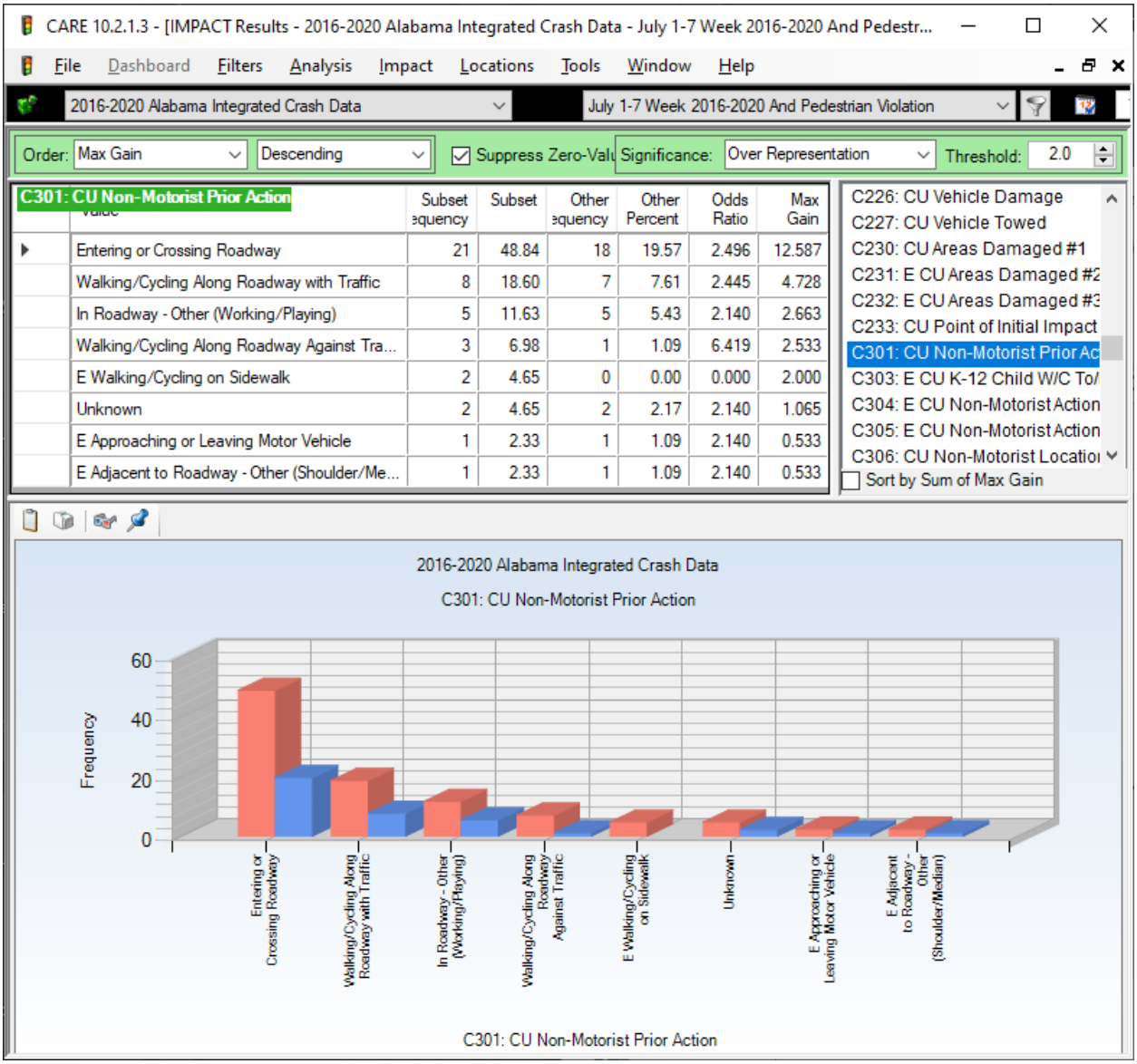
C057 Severe Crashes Number of Pedestrians



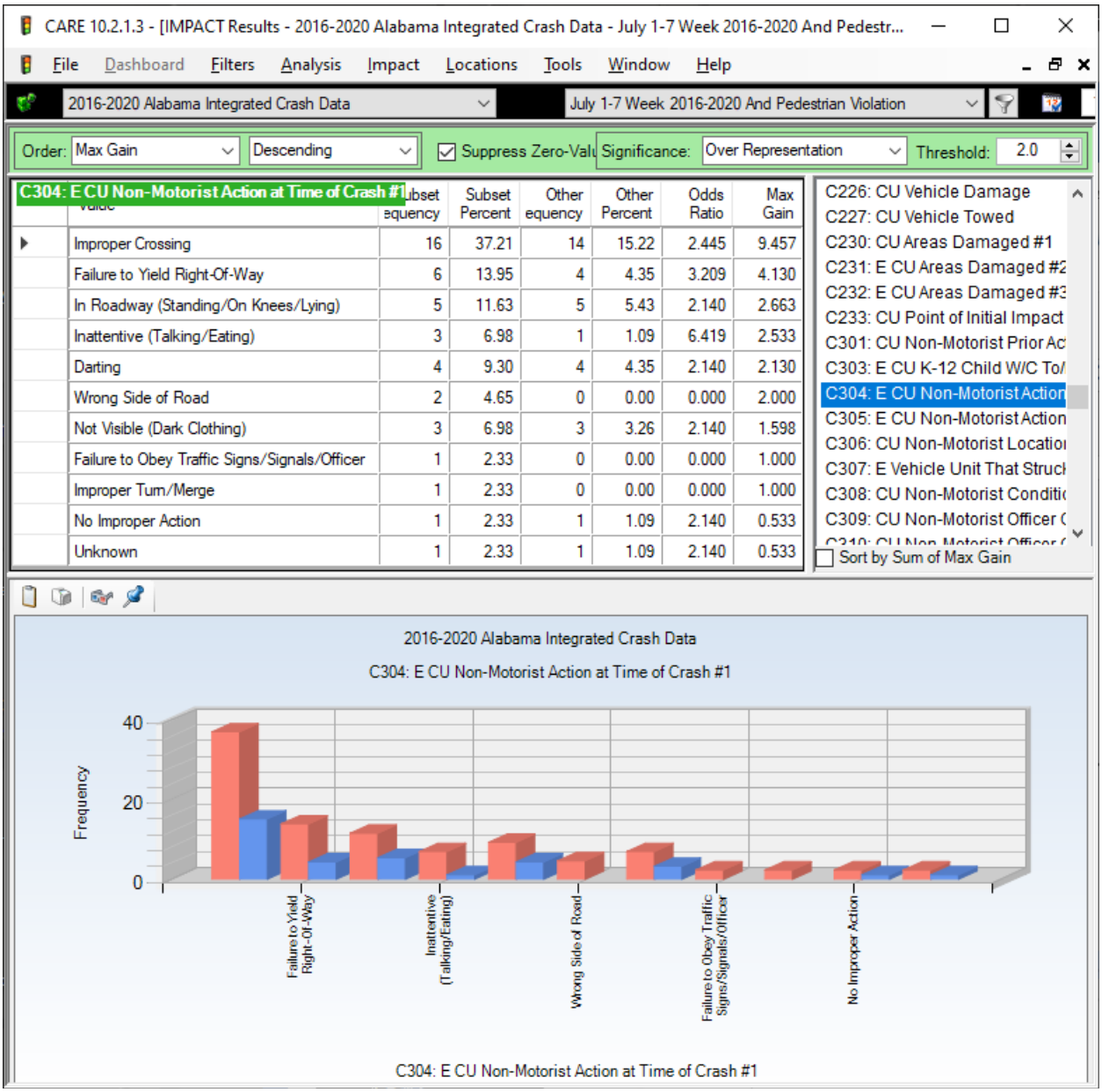
C015 PCC for Pedestrian Violations



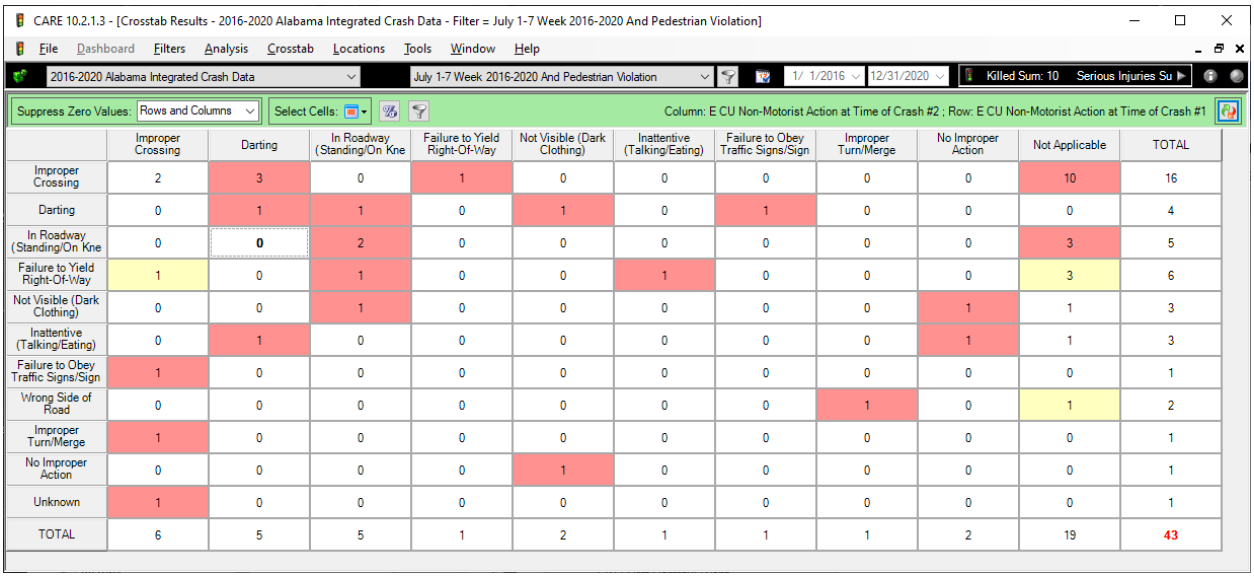
C301 CU Non-Motorist Prior Action (Pedestrian)



C304 CU Non-Motorist Action at time of Crash #1

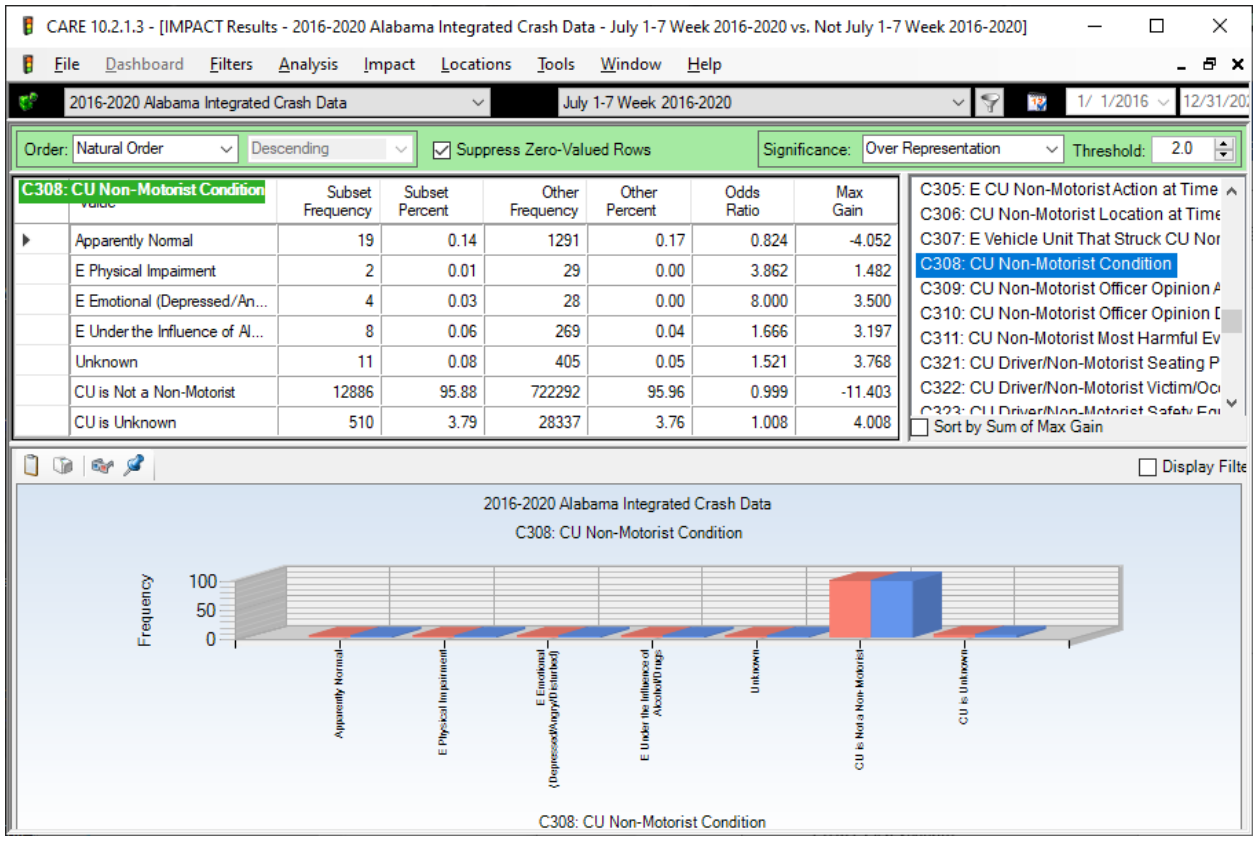


C305 by C306: CU Non-Motorist Action at time of Crash #1 vs #2

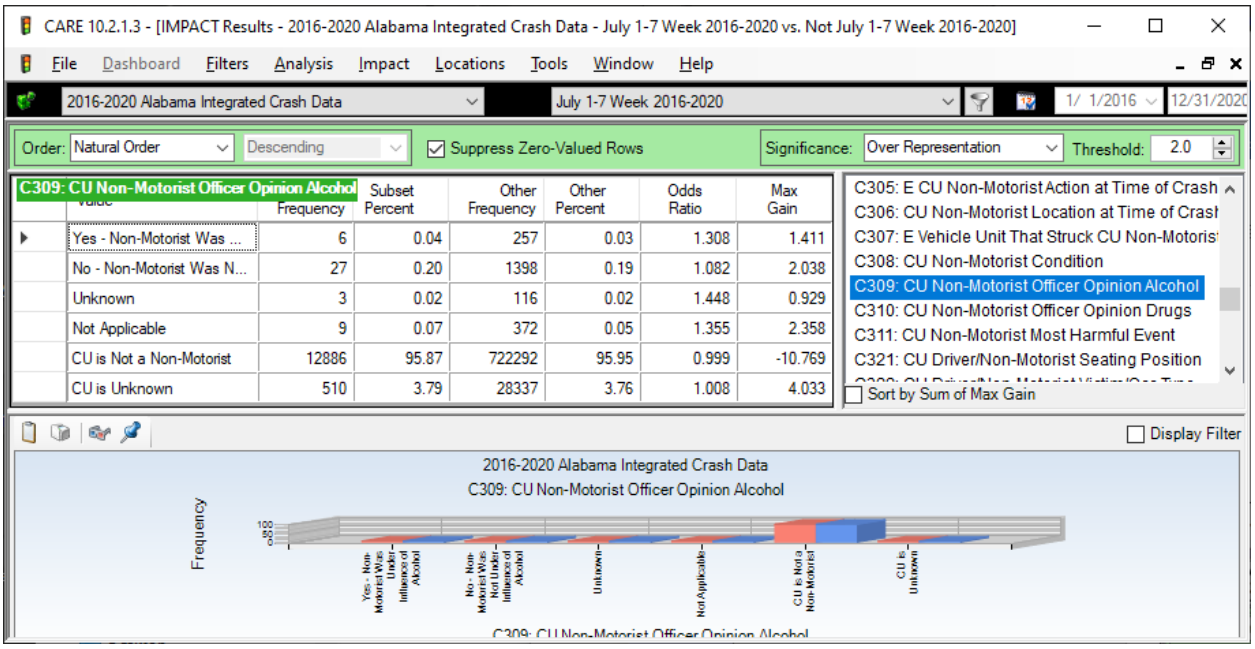


	Improper Crossing	Darting	In Roadway (Standing/On Kne	Failure to Yield Right-Of-Way	Not Visible (Dark Clothing)	Inattentive (Talking/Eating)	Failure to Obey Traffic Signs/Sign	Improper Turn/Merge	No Improper Action	Not Applicable	TOTAL
Improper Crossing	2	3	0	1	0	0	0	0	0	10	16
Darting	0	1	1	0	1	0	1	0	0	0	4
In Roadway (Standing/On Kne	0	**0**	2	0	0	0	0	0	0	3	5
Failure to Yield Right-Of-Way	1	0	1	0	0	1	0	0	0	3	6
Not Visible (Dark Clothing)	0	0	1	0	0	0	0	0	1	1	3
Inattentive (Talking/Eating)	0	1	0	0	0	0	0	0	1	1	3
Failure to Obey Traffic Signs/Sign	1	0	0	0	0	0	0	0	0	0	1
Wrong Side of Road	0	0	0	0	0	0	0	1	0	1	2
Improper Turn/Merge	1	0	0	0	0	0	0	0	0	0	1
No Improper Action	0	0	0	0	1	0	0	0	0	0	1
Unknown	1	0	0	0	0	0	0	0	0	0	1
TOTAL	6	5	5	1	2	1	1	1	2	19	43

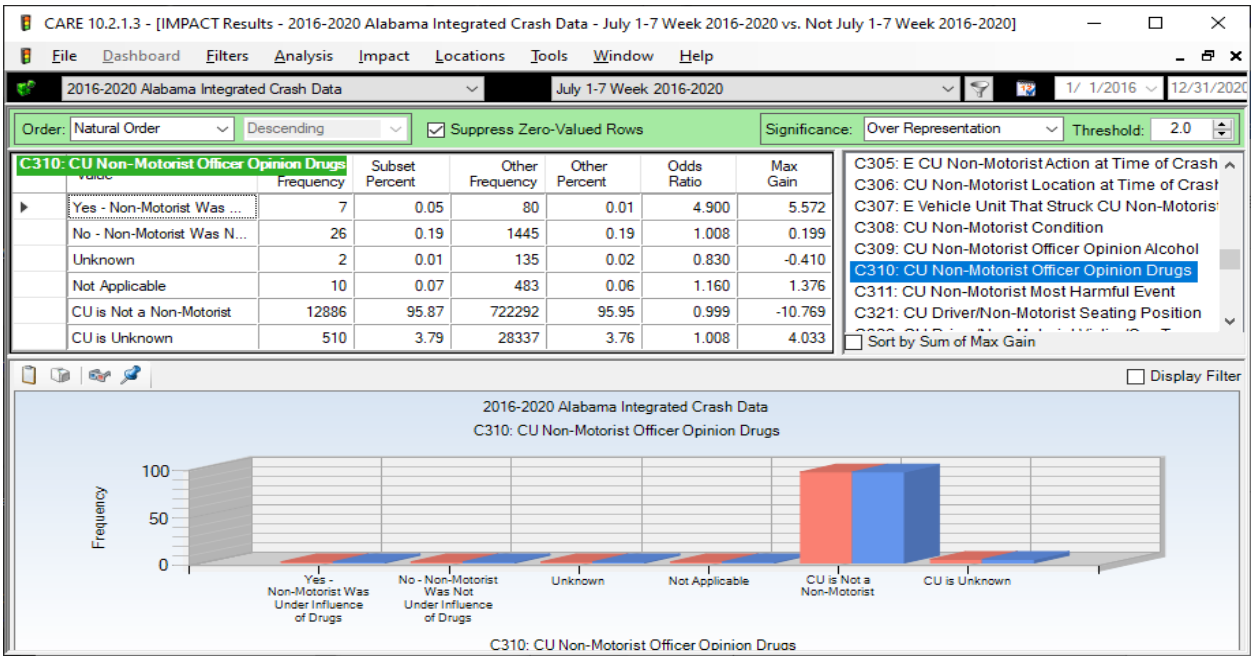
308 CU Non-Motorist Condition (Pedestrian)



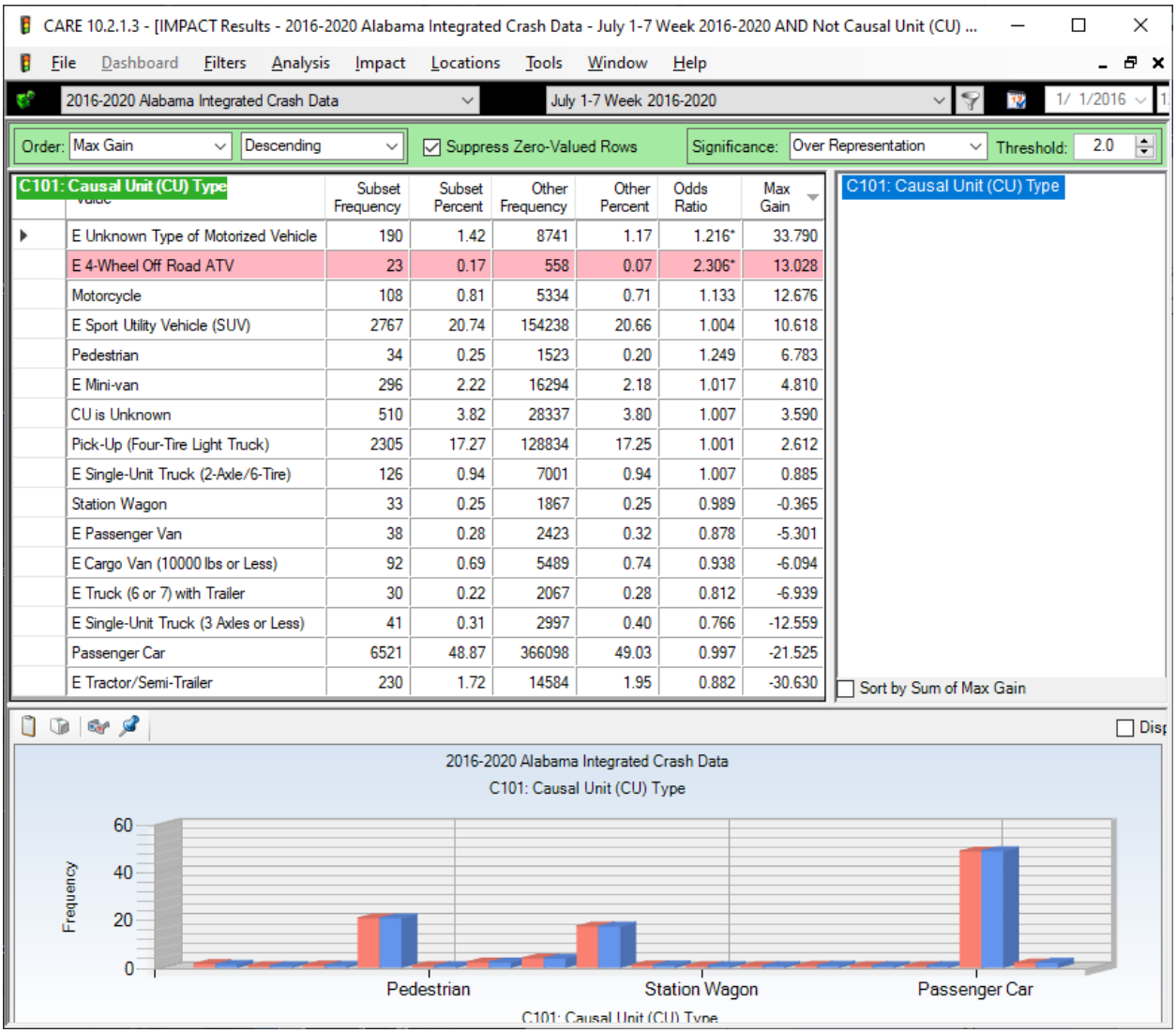
C309 CU NON-Motorist Officer Opinion Alcohol



C310 CU NON-Motorist Officer Opinion Drugs



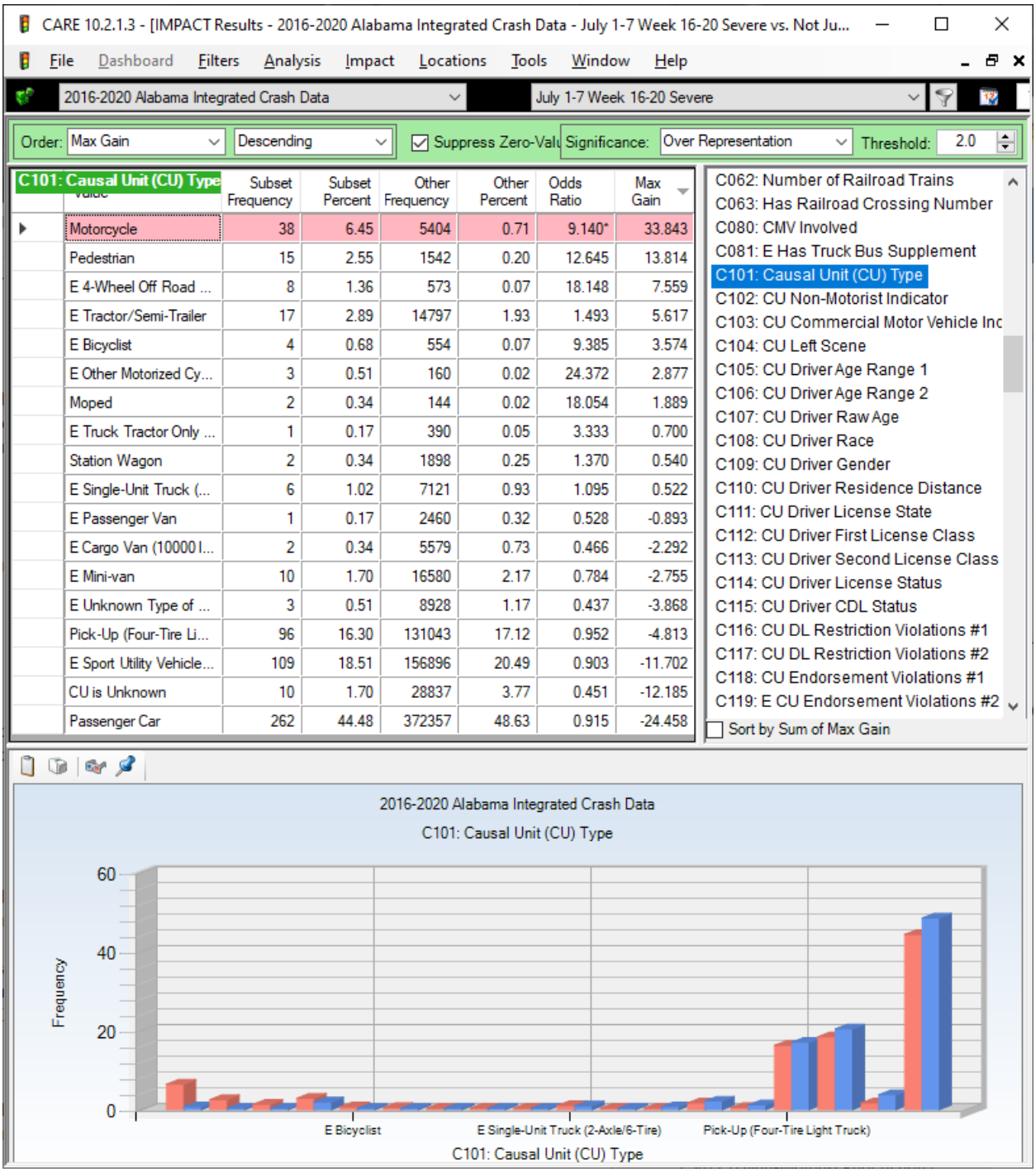
C101 Causal Unit (CU) Type



C101: Causal Unit (CU) Type	Subset Frequency	Subset Percent	Other Frequency	Other Percent	Odds Ratio	Max Gain
E Unknown Type of Motorized Vehicle	190	1.42	8741	1.17	1.216*	33.790
E 4-Wheel Off Road ATV	23	0.17	558	0.07	2.306*	13.028
Motorcycle	108	0.81	5334	0.71	1.133	12.676
E Sport Utility Vehicle (SUV)	2767	20.74	154238	20.66	1.004	10.618
Pedestrian	34	0.25	1523	0.20	1.249	6.783
E Mini-van	296	2.22	16294	2.18	1.017	4.810
CU is Unknown	510	3.82	28337	3.80	1.007	3.590
Pick-Up (Four-Tire Light Truck)	2305	17.27	128834	17.25	1.001	2.612
E Single-Unit Truck (2-Axle/6-Tire)	126	0.94	7001	0.94	1.007	0.885
Station Wagon	33	0.25	1867	0.25	0.989	-0.365
E Passenger Van	38	0.28	2423	0.32	0.878	-5.301
E Cargo Van (10000 lbs or Less)	92	0.69	5489	0.74	0.938	-6.094
E Truck (6 or 7) with Trailer	30	0.22	2067	0.28	0.812	-6.939
E Single-Unit Truck (3 Axles or Less)	41	0.31	2997	0.40	0.766	-12.559
Passenger Car	6521	48.87	366098	49.03	0.997	-21.525
E Tractor/Semi-Trailer	230	1.72	14584	1.95	0.882	-30.630

Reran with all Causal Units less than 20 removed.

C101 Severe Crashes Causal Unit (CU) Type



C025 by C101 Severity by Causal Vehicle Type

CARE 10.2.1.3 - [Crosstab Results - 2016-2020 Alabama Integrated Crash Data - Filter = July 1-7 Week 2016-2020]

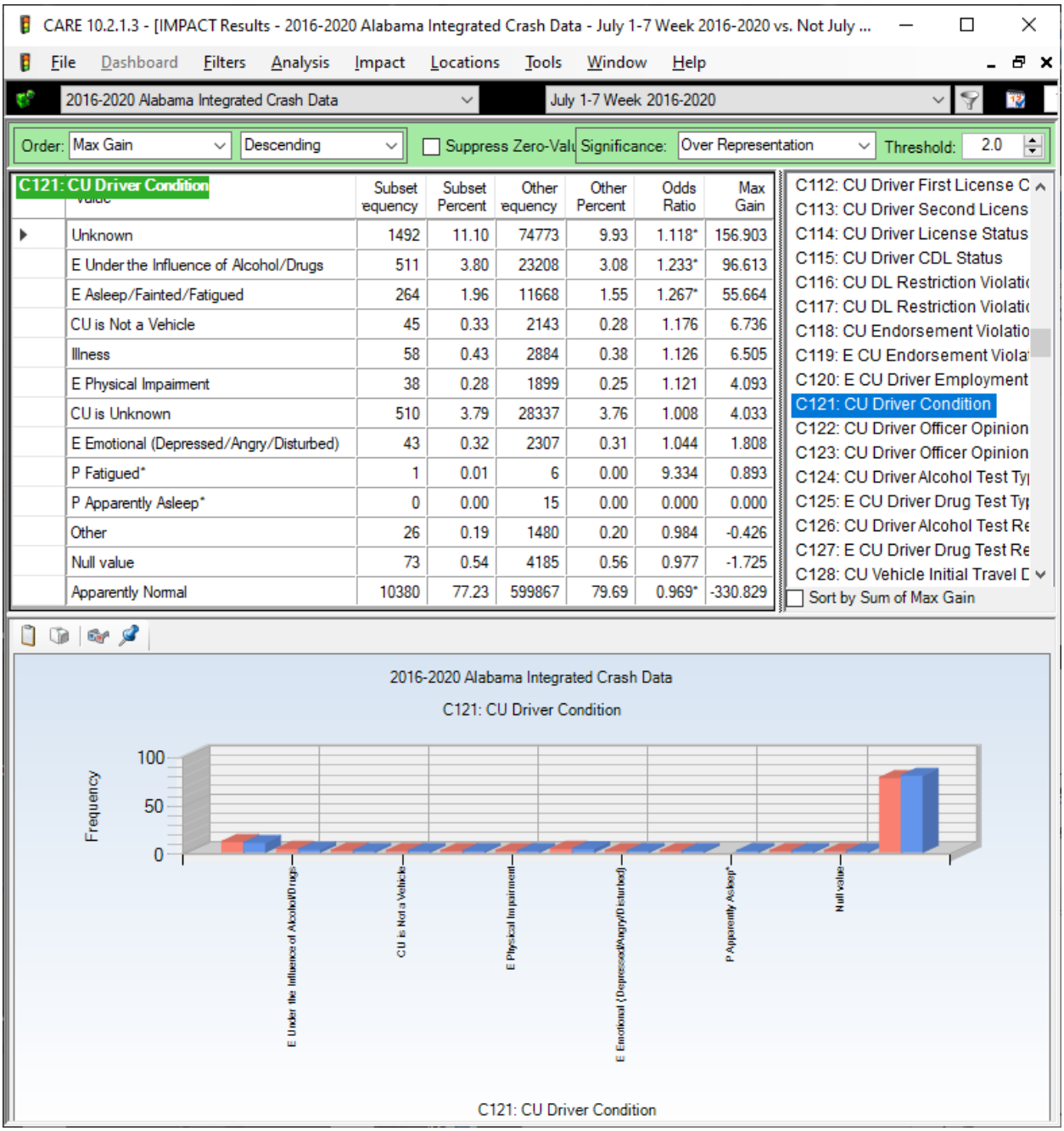
File Dashboard Filters Analysis Crosstab Locations Tools Window Help

2016-2020 Alabama Integrated Crash Data | July 1-7 Week 2016-2020 | 1/ 1/2016

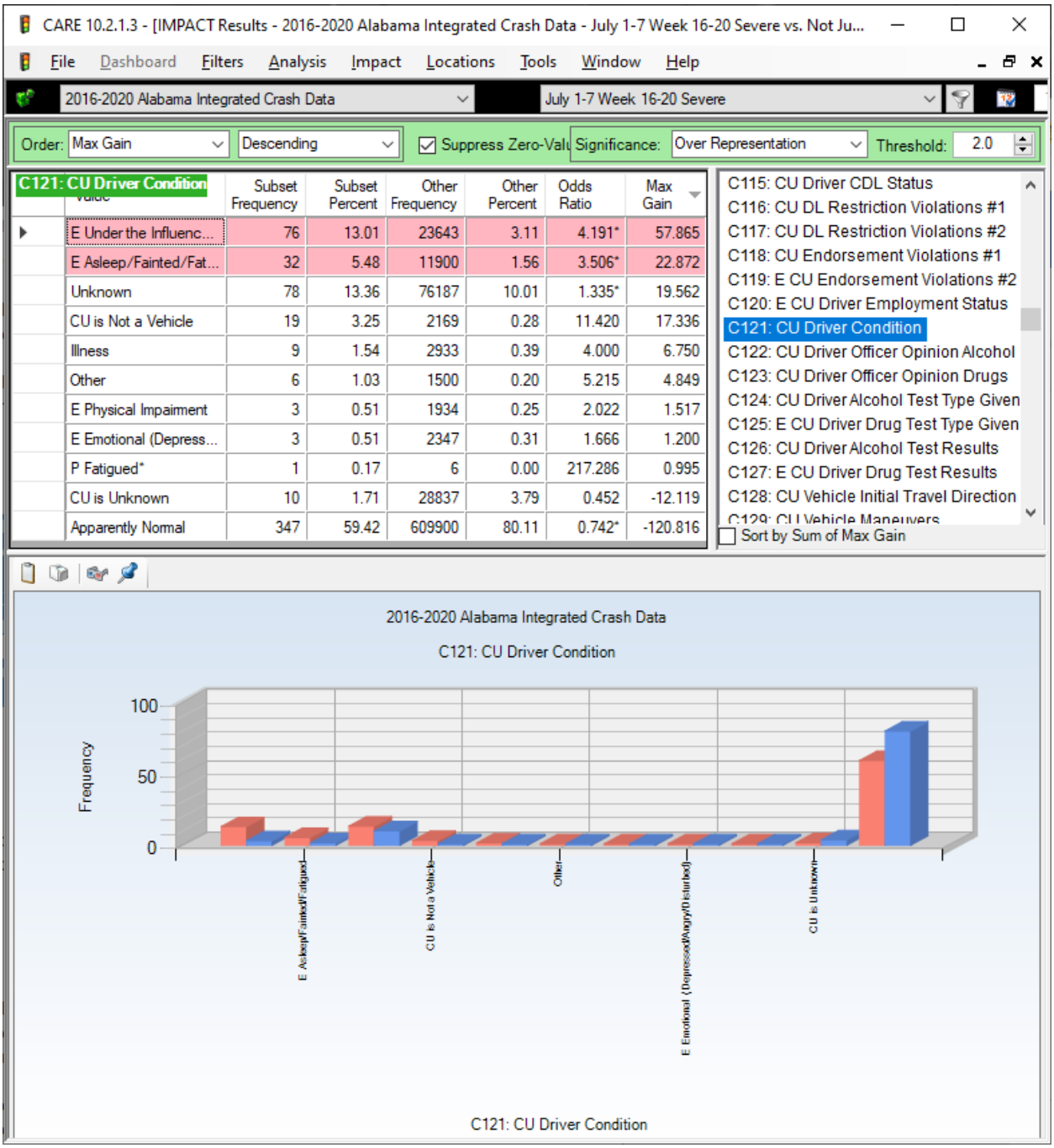
Suppress Zero Values: Rows and Columns | Select Cells: | Column: Crash Severity ; Row: Causal Unit (CU) Type

	Fatal Injury	Suspected Serious Injury	Suspected Minor Injury	Possible Injury	Property Damage Only	Unknown	TOTAL
Passenger Car	35	227	524	629	4912	194	6521
Station Wagon	0	2	4	2	25	0	33
Pick-Up (Four-Tire Light Truck)	12	84	206	195	1747	61	2305
E Van or Mini-Van	0	0	0	1	10	1	12
E Cargo Van (10000 lbs or Les	0	2	14	9	65	2	92
E Sport Utility Vehicle (SUV)	13	96	223	231	2130	74	2767
E Single-Unit Truck (2-Axle/6-Ti	1	5	6	7	104	3	126
E Single-Unit Truck (3 Axles or	0	0	3	1	36	1	41
E Truck (6 or 7) with Trailer	0	0	2	3	24	1	30
E Truck Tractor Only (Bobtail)	0	1	2	0	5	0	8
E Tractor/Semi-Trailer	2	15	17	12	182	2	230
E Tractor/Doubles	0	0	0	1	1	0	2
E Other Light Truck (10000 lbs	0	0	0	0	2	0	2
E Other Heavy Truck (Cannot Cla	0	0	0	0	7	1	8
Motor Home/Recreation	0	0	1	2	7	0	10
Motorcycle	7	31	36	9	22	3	108
Moped	0	2	3	0	1	0	6
E 4-Wheel Off Road ATV	1	7	6	1	8	0	23
E Other Bus (Seats More than	0	0	0	1	9	1	11
E Other Small Bus (Seats 15 or	0	0	0	1	2	0	3
E Low Speed Vehicle	0	0	1	0	4	0	5
E Other Motor Vehicle	0	0	0	0	1	0	1
Pedestrian	9	6	16	3	0	0	34
E Other Pedestrian (e.g.	0	0	1	0	0	0	1
E Bicyclist	1	3	4	0	1	1	10
E Unknown Type of Motorized Vehi	0	3	3	3	167	14	190

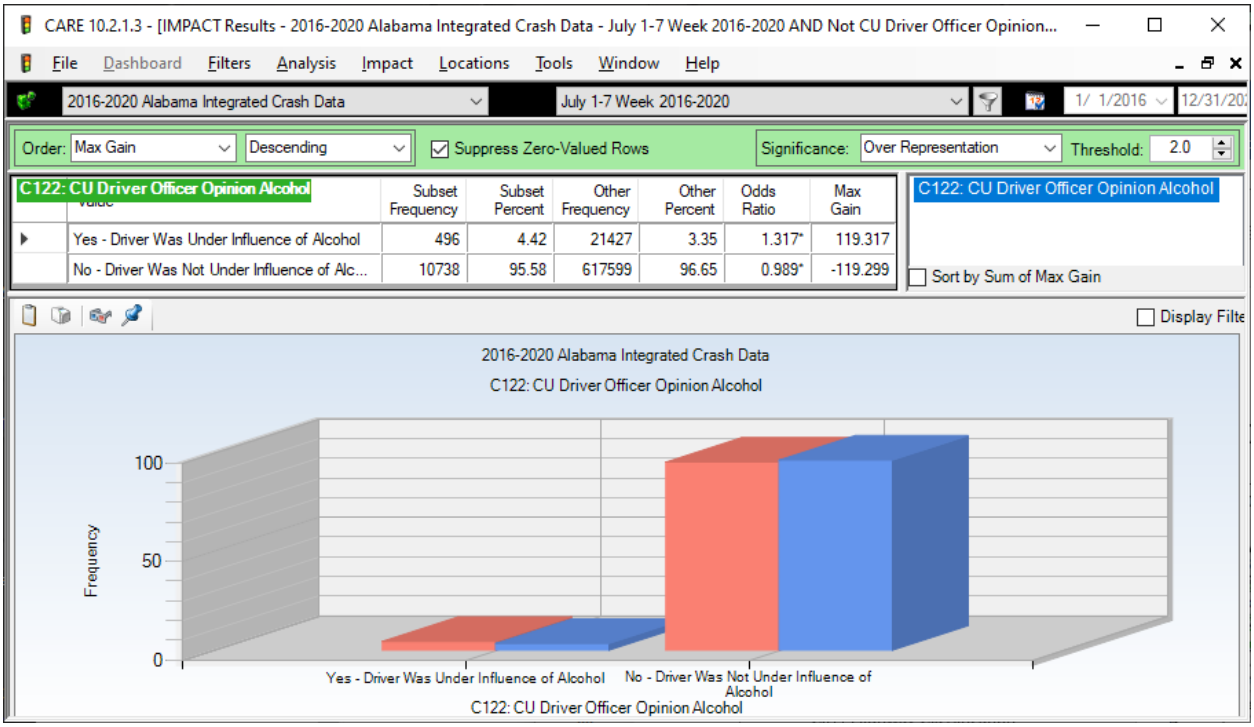
C121 CU Driver Condition



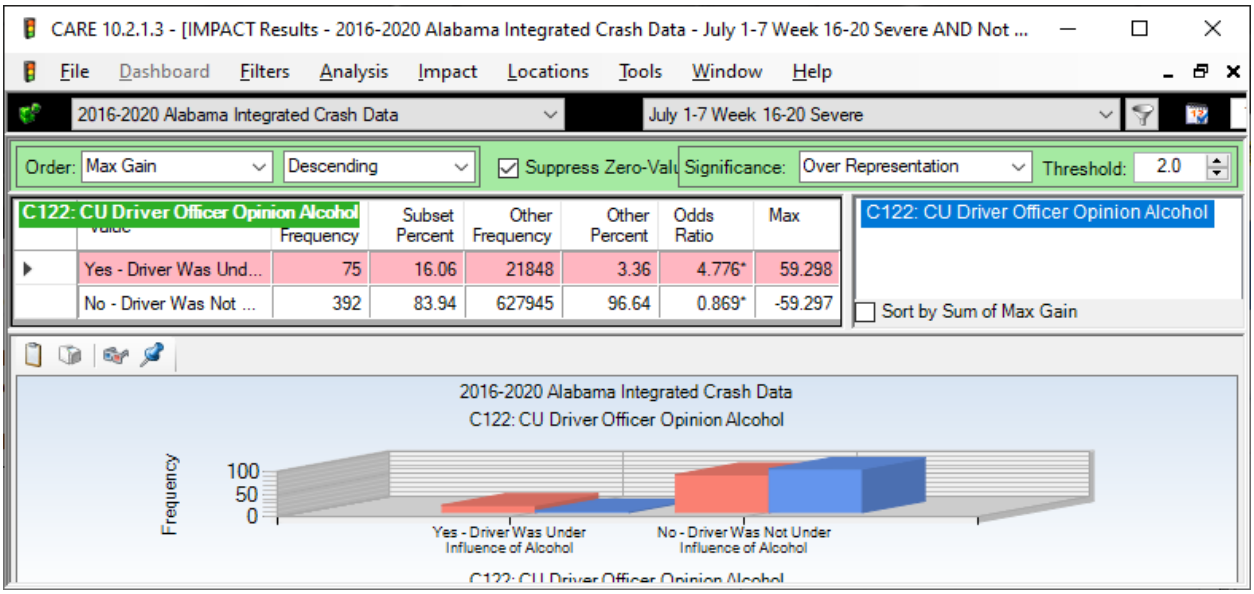
C121 Severe Crashes CU Driver Condition



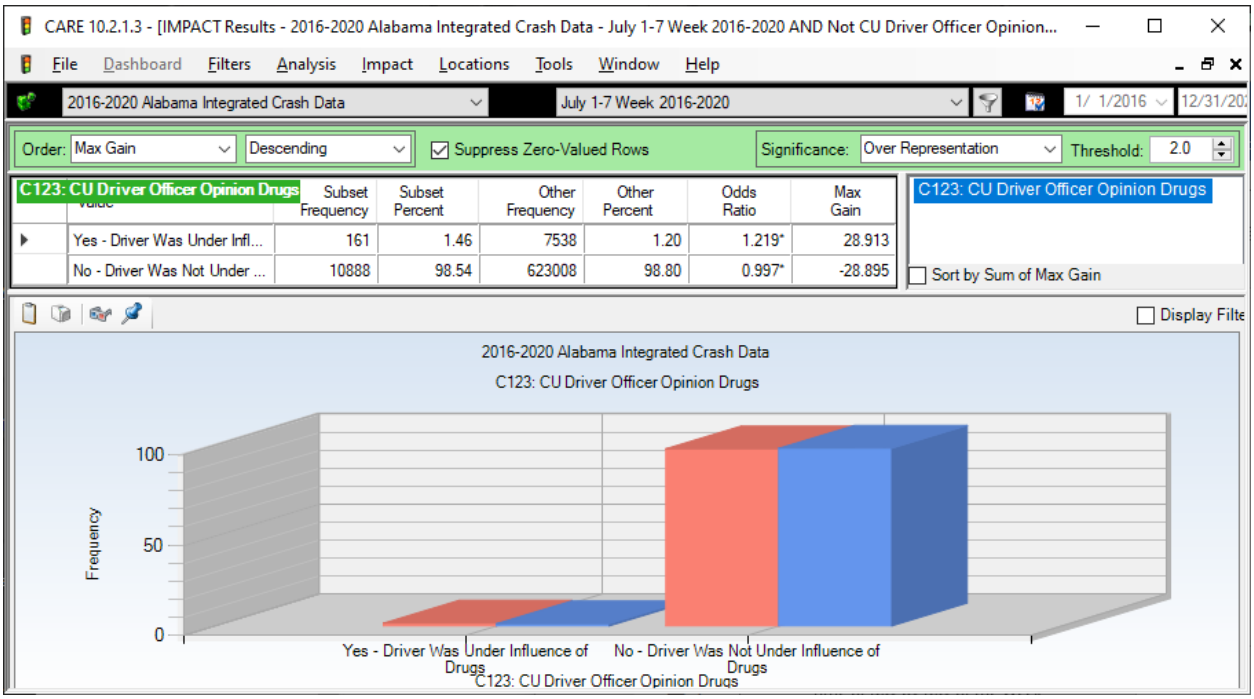
C122 CU Driver Officer Opinion Alcohol



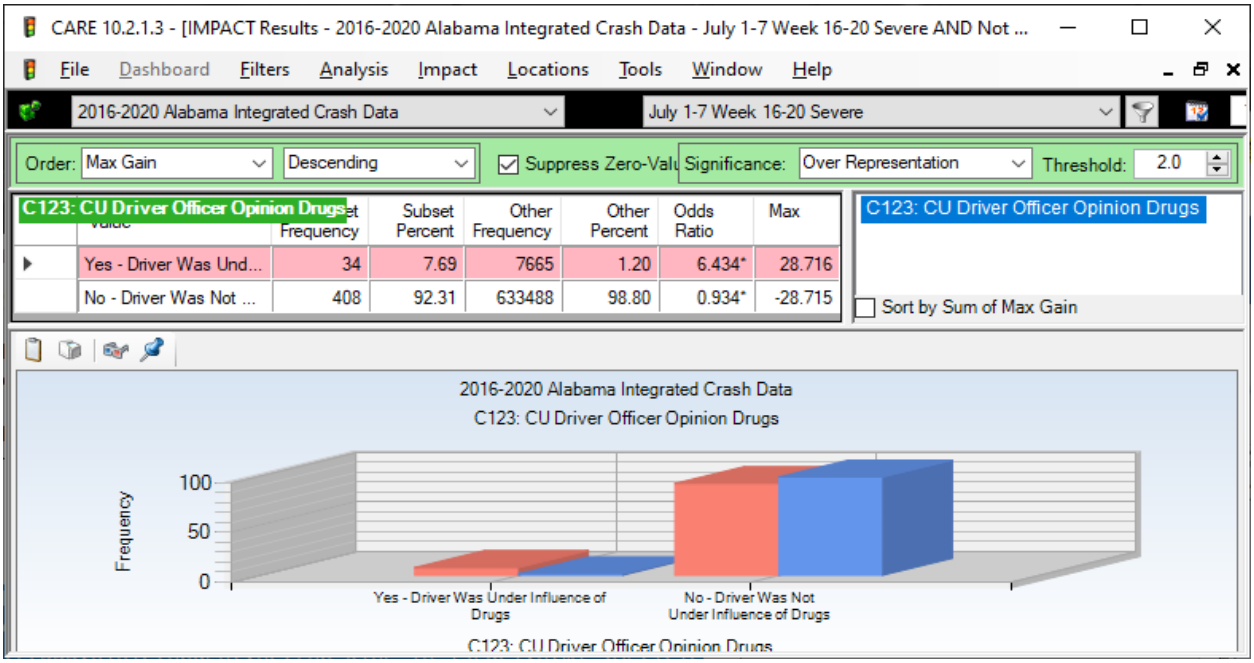
C122 Severe Crashes CU Driver Officer Opinion Alcohol



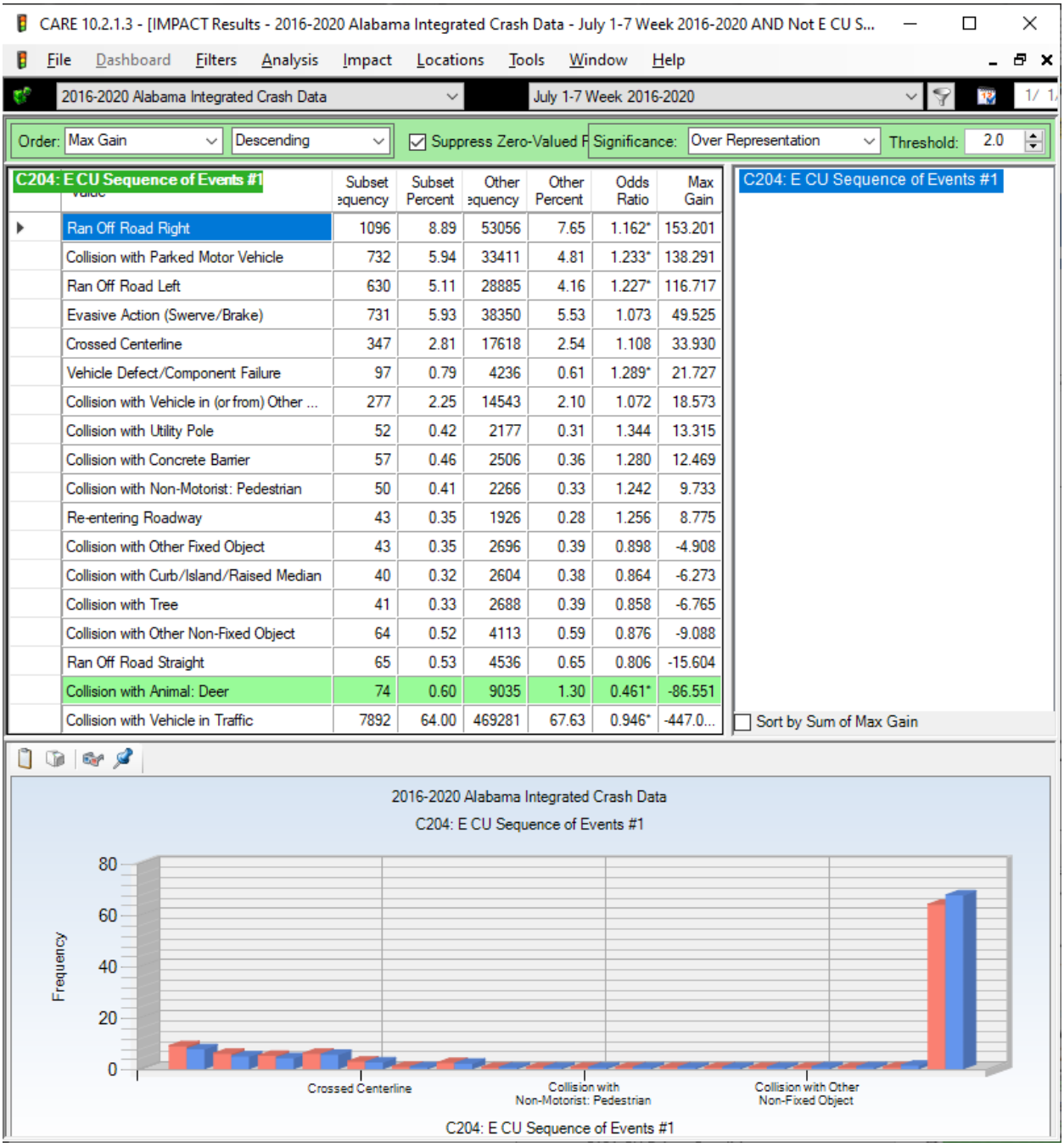
C123 CU Driver Officer Opinion Drugs (Other than Alcohol)



C123 Severe Crashes CU Driver Officer Opinion Drugs (Other than Alcohol)



C204 CU Sequence of Events #1



Items with less than 40 occurrences were removed and the IMPACT was rerun.

C204 Severe Crashes CU Sequence of Events #1

CARE 10.2.1.3 - [IMPACT Results - 2016-2020 Alabama Integrated Crash Data - July 1-7 Week 16-20 Severe AND Not E C...

File Dashboard Filters Analysis Impact Locations Tools Window Help

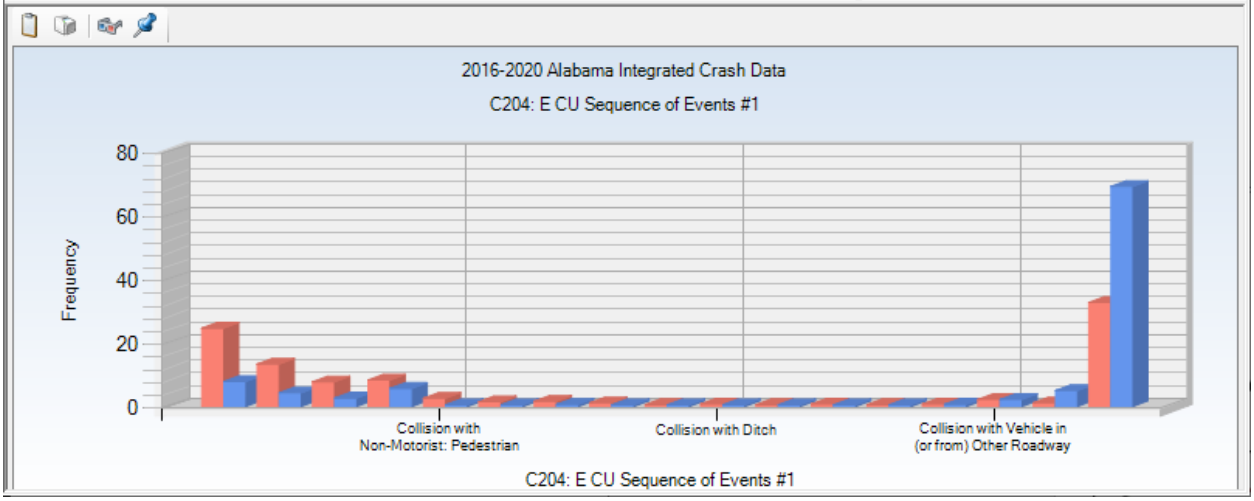
2016-2020 Alabama Integrated Crash Data | July 1-7 Week 16-20 Severe

Order: Max Gain | Descending | Suppress Zero-Valued F | Significance: Over Representation | Threshold: 2.0

C204: E CU Sequence of Events #1	Subset	Subset	Other quency	Other Percent	Odds Ratio	Max Gain
Ran Off Road Right	137	24.55	54015	7.82	3.138*	93.343
Ran Off Road Left	74	13.26	29441	4.26	3.110*	50.205
Crossed Centerline	43	7.71	17922	2.60	2.969*	28.515
Evasive Action (Swerve/Brake)	46	8.24	39035	5.65	1.458*	14.451
Collision with Non-Motorist: Pedestrian	14	2.51	2302	0.33	7.525	12.139
Overturn/Rollover	8	1.43	1269	0.18	7.800	6.974
Vehicle Defect/Component Failure	9	1.61	4324	0.63	2.575	5.505
Collision with Tree	6	1.08	2723	0.39	2.726	3.799
Collision with Non-Motorist: Pedalcycle	3	0.54	652	0.09	5.693	2.473
Collision with Ditch	4	0.72	2159	0.31	2.292	2.255
Crossed Median	3	0.54	1153	0.17	3.219	2.068
Collision with Curb/Island/Raised Median	4	0.72	2640	0.38	1.875	1.866
Collision with Utility Pole	3	0.54	2226	0.32	1.667	1.201
Ran Off Road Straight	4	0.72	4597	0.67	1.077	0.285
Collision with Vehicle in (or from) Other Road...	12	2.15	14808	2.14	1.003	0.032
Collision with Parked Motor Vehicle	6	1.08	34137	4.94	0.217	-21.591
Collision with Vehicle in Traffic	182	32.62	476991	69.09	0.472*	-203....

C204: E CU Sequence of Events #1

Sort by Sum of Max Gain



Eliminated items less than 3 occurrences and reran.